

# PreCompiler Day 1 Morning

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## Building a Web Component Library

*Burton Smith*

Web components have been around for a long time (since HTML 5 became a thing), but there hasn't been a lot of attention given to them until recently. Now, tech organizations worldwide are adopting them and finding tremendous efficiency in creating framework-agnostic reusable components to build their Design System component libraries and applications.

In this workshop, we will learn about the important concepts around authoring web components as well as the technologies used to create, test, and distribute web component libraries for others to enjoy.

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## Building Web APIs with ASP.NET 7 (Workshop) - Part 1

*Chris Woodruff*

Web APIs drive the most popular and powerful web and mobile apps—making the developer who can build a robust web API a developer that's in demand. Get started creating your own with ASP.NET Core, the open-source framework for Windows, macOS, and Linux.

First, learn about attribute routing, the preferred method of handling HTTP requests in ASP.NET 6. Then learn how to set up controllers, connect them to the data model, set up validation for incoming requests, and configure HTTP responses. "Full name" also shows how to implement CRUD operations on the SQL database server where the data is stored. An advanced development section provides insights on using a repository layer and dependency injection to make your API more abstract and testing projects with tools such as MSTest and xUnit. Demonstrations on optimization and caching show how to improve the performance of your APIs.

Follow along with "first name" to learn all these concepts and more, and complete the web API shown in the course: an eCommerce engine for creating and viewing customer orders and assigning orders to sales reps.

Prerequisites

Strongly recommended that you have some knowledge of the following:

- C# and .NET Core or .NET Framework
- LINQ
- Entity Framework
- Microsoft SQL Server
- ASP.NET MVC

You will need the following software installed on your machine.

- Your favorite .NET IDE
- .NET 5
- Microsoft SQL Server or Windows Azure or AWS account for MSSQL
- An HTTP debugging tool like Fiddler or Postman
- Git

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## Event Streaming with Apache Kafka

*Dave Klein*

Whether we're talking about event-driven architecture, data pipelines, streaming ETL, or any of a host of other use cases for real-time data, chances are that Apache Kafka is part of that conversation. Kafka has become the de facto standard for working with data in motion. Used by thousands of organizations worldwide and in pretty much every industry, Kafka's adoption continues to grow, making it one of the most in-demand tech skills on the market.

In this workshop, we will get hands-on with Kafka, the Kafka Client library, Kafka Connect, and Kafka Streams. All components of the open source Apache Kafka project. When we're done, you'll have the tool you need to put Kafka to work in your projects.

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## **Establishing Good TDD Habits**

*Brendan Enrick & Michael Richardson*

In this hands-on workshop, you'll learn fundamental techniques to improve your code through TDD and Pair Programming. You'll sharpen your skills working with your peers on programming exercises designed to instill good techniques that you'll be ready to apply on your current and future code.

Attendees should already be comfortable with a programming language of their choice, and if possible should bring along a laptop with their preferred development tools installed. This workshop will have you doing group/pair design, refactoring, and application of design patterns through short programming exercises to improve your skills at writing clean code.

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## **Love You 10000: Build Your Own J.A.R.V.I.S. Assistant Using Next-Gen Tech From Elon Musk's AI Team**

*Scott Showalter*

"Good morning. It's 7 AM. The weather in Malibu is 72 degrees with scattered clouds. The surf conditions are fair with waist to shoulder highlines, high tide will be at 10:52 AM. Shall I confirm your surf session with Mr. Musk for this afternoon?"

If you're like most people, you've probably dreamed of having your own personal AI assistant like J.A.R.V.I.S. from the Iron Man movies to take care of the mundane tasks in your life so that you can focus on more important things. Well, now there's a way to make that dream a reality using the latest artificial intelligence technology from Elon's OpenAI team.

In this workshop, you will learn how to build your own AI that works just like J.A.R.V.I.S. using the new GPT-3 Davinci model from OpenAI. We'll start with a brief overview of AI and machine learning concepts, then move on to a hands-on walkthrough where you'll rapidly build and train your own AI model. You'll have him communicating to your likeness within the first hour. By the end of this session, you'll have your own AI assistant that you can take home with you to help with your daily tasks (or take over the world, if that's what you're into).

Aside from world domination, J.A.R.V.I.S. can be used for a variety of things. He can report today's weather to you just the way you like it, give you a rundown of your day's schedule in your own words, handle your email replies with the most genius responses, manage your social media with the kind of pizzazz that makes people see you as a hero, write thought-provoking articles for your blog, script YouTube videos or podcast episodes, help out with the homework, take care of your reports, write that

10-page research paper, hunt down higher-paying job opportunities for you, sell your consulting services in irresistible ways, solve tough challenges in ways you never thought possible, make witty observations about your current reality, tell better jokes than Alexa or help you craft some original jokes you can claim full IP on, and he can even make small talk in the most delightful and enlightening way.

Your life will never be the same.

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## **Security Defense and Detection - RPG TTX**

*Amanda Berlin & Jeremy Mio*

Security Defense and Detection TTX is a comprehensive 4 hour tabletop exercise that involves the introduction of TTXs (tabletop exercises), IR playbooks, and after-action reports. The exercises are paired with hands on attacks demo labs (labs provided) that reinforce their purpose. The training as a whole is compatible with the world's most popular RPG rules.

The first quarter of the class covers general TTXs and preparation for the remaining portion TTX. The preparation phase will walk students through specific IR playbooks templates with lab demos used to enhance the contents.

During the training students split up into separate “corporations” with assigned verticals, hit points, armor class, budgets, strengths, & weaknesses. Selection of departments and skills allow the players to further their modifiers. Throughout the exercise, each company will take turns rolling their way through decisions such as large purchases, attack severity, defense capability, and incident response decisions.

A major benefit of this training is giving real world insight into the dynamics of an enterprise such as time constraints, working with third-party vendors, communicating with people that have different perspectives from a support role to CISO to CEO, and sometimes possibly even the unknown.

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## **Building Trust and Breaking Barriers (with LEGO!)**

*Thomas Haver*

LEGO(R) sets are fun to build, but who has ever attempted to build a set without looking at the instructions? In this workshop, attendees will form teams and attempt to build a LEGO(R) set without instructions. Through a series of iterative exercises that provide more product details, the teams will attempt to build & test their product as close to the instructions as possible without peeking.

Each group will learn different approaches to collaborate on product development and testing during the meeting to build a set according to a customer's needs. The workshop will highlight the gap between what we set out to build & the finished product as well as the gap between what our customers expect & the finished product. Our goal as a group will be to refine our techniques so we deliver a product on-time & on-budget that customers will love.

Learning Objectives:

\*Teams will learn collaboration techniques to build & test with limited information.

\*Attendees will learn to approach testing from the perspective of customer needs rather than strict requirements.

\*Attendees will learn how to question assumptions by breaking down requirements before testing

begins.

\*BONUS: Some attendees will receive LEGO(R) sets of their own to take home

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## **Python - From beginner to production CRUD maven**

*Ilya Gotfryd*

Python is a popular language at the intercept of brevity and exceptional readability. While it has broad adoption, it tends to escape certain geographical regions almost entirely. Many believe it to have insufficient performance or take an issue with its dynamic typing.

In this code-along session, you will cover Python basics including its wonderful native power of data transformation. You will go over all of the concepts necessary to comprehend the main material of the session. In conclusion, you will get to try out an excellent FastAPI CRUD framework accompanied by model validation and serialization engine Pydantic.

This session is for software developers of all levels with a novice to beginner knowledge of Python.

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## **Creating FastAPI Fast**

*Nuri Halperin*

Do you want to create an API for your website, mobile app, or enterprise? Do you want it to "just work"? A bit of Python and FastAPI will help you do just that!

With FastAPI you can build commercial grade endpoints quickly using a low-friction approach for hooking API into your logic and an out-of-the-box fast HTTP serving layer. You will learn how to build an API with a full Swagger UI that is connected to your own back-end logic.

This workshop requires basic Python knowledge.

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## **Build a Serverless Github Bot in GCP**

*Franklin Diaz*

Did you ever wonder how the cool kids get their bots going to manage pull requests in Github? The bots that can comment on Pull Requests, label things, perform other actions that are helpful to human developers? Well so did I, so I assembled one a while back that I want to share with you.

## **PreCompiler Day 1 Afternoon**

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### **Automating Almost All Application Security Things with CI/CD -- Even Honeypots!**

*Andy Douglas & Mick Douglas*

Application Security is hard... if you do it wrong. IT Departments are doing a woefully poor job at application security based on...checks news headlines...all the data. Improving your organization's application security posture can seem like a daunting and expensive project that must compete with more urgent priorities. Fortunately, you live in an era of automated application pipelines! In this session, you'll learn how to "shift left" with application security by incorporating Dynamic Application Security Testing (DAST) and Active Defense (yes, honeypots!) into your CI/CD pipelines, adding

significant protection for your applications with minimal effort. We'll go far further than many feel possible... attendees will learn they have far more options in their CI/CD than they realize!

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- LINQ
- Entity Framework
- Microsoft SQL Server
- ASP.NET MVC

You will need the following software installed on your machine.

- Your favorite .NET IDE
  - .NET 7
  - Microsoft SQL Server or Windows Azure or AWS account for MSSQL
  - An HTTP debugging tool like Fiddler or Postman
  - Git
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## **Learning Go: From Hello World to Web Service**

*Eric Potter*

Have you heard about the power of the Go language and wanted to try it out? Are you interested in seeing how you can use Go to build performant web services quickly?

In this workshop, we will cover the fundamentals of the Go language. We will cover the tools you need to build useful applications. You will get hands-on experience writing code and building apps in Go in the lab exercises.

You will start with Hello World and finish by building your first web service.

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## **Modern Retro Game Programming with the PICO-8**

*Keith Kurak*

Alternate Universe 1982 is calling! The PICO-8 fantasy console beckons you back to the future with cutting-edge 16-color 128x128 graphics, huge 32k game carts, and 4-channel chip blerp sound. Let's take a totally different approach to learning how to make a video game, stepping far away from 3D rendering engines to the bare essentials of a few loops moving sprites around- but with some modern niceties, like Lua and a friendly point-and-click IDE. We'll tour the PICO-8 suite by building a simple endless runner game, while drawing inspiration for your next project from 8-bit classics from the both the PicoVerse and our own reality.

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## **Get Hands-On with Your Second Brain! (Workshop)**

*Jeffrey Miller & Tyler Shingler*

Stop overloading your brain with too much information and too many good intentions! Build a Second Brain to give your first brain a break.

Second Brain support systems like note taking apps (Evernote, Notion, and OneNote) can yield surprising gains so you can wield the information that matters most to achieve your highest personal goals.

In this hands-on workshop experience, you'll build a personal Second Brain system you can use to propel you forward in new ways toward things you really care about. Explore structures you can use to manage key information about your personal network, learning paths, important personal projects, and more in a cohesive way with familiar tools.

Learn surprising ways to better capture, organize, and leverage the information vital to your success and make it actionable and relevant to your life.

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## **How to enjoy working with others and be the person people want on their team**

*Natalie Hylton & Tristan Chiappisi*

Can't work with some people? Don't know why some are so-o-o slow, can't make a decision or are obsessed with controlling every step? Join this session and find out why that is and learn how to work with it (or around it)!

This very interactive workshop uses the Myers-Briggs Type Indicator instrument to provide objective insight into your strengths and blind spots, how you differ from others, and focuses on the value and appreciation of our differences.

The knowledge you will gain helps build a culture of collaboration, empathy, awareness and adaptability. If you are a people leader, it will help you develop employee engagement strategies, boost the resilience of your people, strengthen leadership, improve team dynamics, and increase productivity.

It is invaluable in your work, relationships, and life.

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## **Build your first Serverless Web Application**

*Curtis Darst & Camille Roussel*

Use the Serverless Application Model (SAM) to build a backend process for handling requests for your web application. A serverless approach will allow you to minimize undifferentiated work around managing servers, infrastructure, and the parts of the application that add less value to your customers. Serverless can make it easier to deliver new features in applications, launch experiments, and improve your team delivery velocity, while also providing a pay-for-value cost model. Workshop include AWS accounts to deploy the Serverless application.

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## **So you wanna speak at Codemash?**

*Kristin Villalobos*

Do you feel ready to speak at a conference like CodeMash, but aren't quite sure how to start? Are you curious about presenting, but aren't really sure what it takes? Have you submitted talks that aren't getting accepted and want some feedback on your proposals?

During this workshop you will practice picking a topic, building an outline to refine your ideas, developing an abstract, and selecting a title that represents your talk and draws interest! You will also be exposed to tips from experienced presenters on creating a slide deck, utilizing the sometimes forgotten-about Notes section, and crafting your biography. Selected participants will be invited to present their work at the Lightning Talks during the conference.

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## **Learn to MERN**

*Joel Lord*

Everyone talks about being a full-stack JavaScript developer, but what does it even mean? Can you really use JavaScript all the way through your development stack, and how to get started? All the different technologies that are needed to become a full stack developer might seem daunting at first, this workshop is aiming at making this simpler and more accessible. In this workshop, the attendees will learn how to build a full stack application using the MERN (MongoDB, Express, React, Node.js) stack.

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## **Mad Scientist Lab With Raspberry Pi Pico Microcontrollers**

*Barry Tarlton & Brendan Barth*

Carefully plugging the wires into the bread board, doubt seeps in, “should the red wire go to ground or the white one?” LEDs all in place, Python code properly indented (spaces, not tabs), prayers for the magic smoke to not escape go up as the electronics are powered on. In an instant, worries subside as the microcontroller springs to life and the twinkling of little lights glowing in the precise rhythm as instructed by your code testifies that software and hardware are in perfect harmony.

Amazing experiences like this and more can be yours in this session. You'll have the opportunity to build your own sweet creations using the Raspberry Pi Pico microcontroller and a variety of other electrical components that merge electronics and software in beautiful harmony. The Pi Pico is an inexpensive microcontroller that can run MicroPython to control a plethora of electrical doodads. If you want to bring your code into the real world with crazy inventions, come to this session to get the foundational skills you need to release your inner mad scientist!

**\*\*NOTE\*\*** To attend this session you need to purchase an additional ticket on Event Brite for \$20. This ticket will pay for the hardware you will receive the day of the lab and will be able to keep. Look for the ticket "[PreCompiler] Mad Scientist Lab With Raspberry Pi". Hurry space is limited!.  
<https://www.eventbrite.com/e/codemash-2023-tickets-396878312717>

Prerequisites for this session can be found here:  
<https://github.com/javaplus/PicoProjects#prerequisites>

## PreCompiler Day 2 Morning

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### A Hands-on Intro to Docker Containers

*Gene Gotimer*

Containers are one of the hottest technologies in our industry today. They are like virtual machines but smaller and faster. They can provide on-demand, disposable environments that start quickly and repeatably, locally or in the cloud. We can tear down the container whenever you want and recreate a pristine copy within seconds. And since the process is automated, anyone on the team can use the same commands to get an exact duplicate of their own. No more "it works on my machine," since development and production will be the same.

This workshop is a hands-on introduction for anyone interested in learning about containers, specifically Docker— you will need your laptop. You will walk through building containers, starting simple but moving to real-world setups. You'll use tools to ensure those containers are built and deployed securely. And then you will see how all of this evolves to a full-blown, production-ready setup.

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### Designing and Architecting Cloud-Native Apps in Microsoft Azure - Part 1

*Kevin Grossnicklaus*

During this all day workshop we will demonstrate how to plan for and manage the full lifecycle of a modern application using the latest Microsoft Azure resources and tooling. We will start with a high level overview of a wide variety of architectural and Cloud-based considerations and we will then work our way down through a complete setup of a basic application all the way from a clean Azure DevOps and GIT repo setup, through bootstrapping an empty UI in Angular and a robust API using .NET Core/C#. We will demonstrate how to fully automate the deployment and development lifecycle of these application components up to Azure. We will ultimately take the same Azure configuration and convert it to a full "infrastructure as code" setup using Terraform.

We will also discuss how to efficiently and cost-effectively make use of Azure resources by demonstrating various best practices for choosing the right components and proactively monitoring utilization and costs of your applications.

If you want an example of a very robust and "real world" Cloud-based architecture targeted to Microsoft Azure then this 8 hour workshop will be something you do not want to miss.

Agenda:

Architectures in Azure



Framework choices from .NET Core to NodeJS to Mobile  
GIT Best Practices for Branching and Versioning  
Database Options and Implications  
Azure DevOps Pipelines  
Azure Planning and Pricing  
Containerization  
Ongoing Monitoring and Support

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## Mastering TDD in Legacy Code

*Brendan Enrick & Michael Richardson*

In this hands-on workshop, you'll learn to effectively use the principles and practices of increasing the reliability and maintainability of your code through testing and pair programming. You'll sharpen your skills working with your peers on programming exercises designed to instill good practices that you'll be ready to apply to non-trivial codebases.

Attendees should be comfortable with a programming language of their choice, and if possible should bring along a laptop with their development tools installed, including a unit test tool. This session will focus on group/pair design, refactoring, and application of design patterns to improve the design of existing software.

Both beginners and experienced developers and from all backgrounds are welcome.

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## Build Web Apps with Blazor WebAssembly

*Ed Charbeneau*

The arrival of WebAssembly begins a new era for .NET web developers, allowing client-side applications written in C# to run directly in the browser. Blazor is a newly emerging client-side UI platform from the ASP.NET Core team, offering a productive and powerful way to construct large-scale applications with a modern component-based architecture. It integrates with the wider .NET ecosystem to enable truly full-stack client+server development on a single language and runtime, based on modern standards, and able to run in any browser (including mobiles).

This PreCompiler will use my liveProject "Build Web Apps with Blazor" published by Manning Publications, and each attendee will receive a complementary copy of the liveProject. The liveProject will take you from getting started with Blazor basics, right through to building sophisticated UIs using more advanced framework features. The full liveProject series has 4 modules: Simple App with WebAssembly, Unit Testing with bUnit, Advanced State Management, and Authentication and Blazor. The liveProject is an estimated 16 hours from start to finish, therefore we will cover as much ground as possible during the PreCompiler as time allows. Attendees are encouraged to complete the entire series to earn a certification from Manning Publications.

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## IR Workshop

*Nathan Case*

Today's DevOps world has several new responsibilities added to the everyday engineer's existence. For example, a developer often has to assist in incident response and threat hunts. Unfortunately, these skills are hard to learn and can come at a cost if they are done on the job while an event is

ongoing.

In this four-hour workshop, we will examine a scenario where we are running multiple services spanning AWS and Azure and are under attack by an outside threat. Exploring the use of a SIEM (Security Information and Event Management), we will demonstrate how it exposes critical related data to signal errant activity. After the workshop, the participant will come away with a topical understanding of the risks in any cloud deployment, incident response experience, and hands-on experience in using a SIEM and how to integrate it into your observability portfolio.

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## **Snorkeling in MAUI ?**

*Sam Basu*

.NET MAUI is the next generation of cross-platform .NET development stack. A truly single code base powers apps to reach mobile/desktop natively, with tighter inner loop & smarter app architecture. With .NET 6/7, .NET MAUI promotes code reuse across platforms & enables modernization strategies.

Let's look under the surface of the future with .NET MAUI. Architectural changes make things more consistent in .NET MAUI – app bootstrapping, resource sharing, dependency injection, support for multiple design patterns & catering to mobile/desktop platforms.

Older desktop technologies like WinForms/WPF get a breath of new life. Migration & reusability from Xamarin.Forms to .NET MAUI should be natural - tools can help. .NET code & styling can now be shared seamlessly between web, desktop & mobile. Blazor isn't just for modern server/client web apps, but now powers native apps with .NET MAUI. Web components and styles can be easily shared between web & native apps. JavaScript SPA apps written with Angular/React/Vue are welcome too – JS & .NET can freely talk to each other. Polished web UI is reusable on mobile/desktop apps from a true shared codebase & with full platform API access. Welcome to the island mindset with MAUI – let's mix & match technology stacks & move apps forward.

.NET MAUI is a combination of technologies to evolve cross-platform .NET development stack for future – a state of mind for surf & fun. Let's explore!

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## **Learn F#, at an easy tempo**

*Eric Potter*

Have you ever wanted to learn about a functional programming language without getting stuck in all of the jargon? Would you like to learn one that uses a framework you are familiar with and tools you probably already have installed? Come to this workshop and you will learn to use F# in practical and useful ways.

I'll teach you about F#, the functional language that is in harmony with the .Net ecosystem, at a tempo that is more Andante than Allegro.

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## **What is Your Working Genius? (Workshop)**

*Kyle Jenkins*

The working genius model is a productivity model developed by Patrick Lencioni with the goal of accomplishing a simple concept: bringing more joy and fulfillment at work! When you and your team

understand where your geniuses are and how to (and when not to) use them, it can improve meetings, reduce burnout, and dramatically reduce turbulence in getting projects done. In this workshop we will review the 6 types of working geniuses and how they bring projects from ideation to implementation. We will discover the hidden cause of burnout and how to keep meetings, including our agile ceremonies, more focused and more productive as a whole, all with the goal of improving your life and team culture, both in and outside of work. (that's right... ALL projects!)

This workshop will allow everyone to take the assessment at no cost. We will create teams and go over mock scenarios and go into depth on how this affects teamwork and dramatically reduce turbulent culture.

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## **Slay the app dev Inner Loop complexity on Kubernetes**

*Rags Srinivas*

The seminal book Algorithms + Data Structures = Programs written by Niklaus Wirth about 50 years ago is still applicable in this modern era of microservices where speed triumphs over everything else and warrants designing performant algorithms backed by low latency data access. Productivity gains via speeding the inner loop is right in the center.

Cassandra is great for low latency data access. Quarkus is a Java framework and runtime built on technologies and standards familiar to most Java developers.. It's reactive at its core, boasting extremely fast boot times and low memory utilization, while providing near-instant scale-up. It offers a great developer experience, with capabilities such as live coding, continuous testing, and so on. Kubernetes is the development/deployment platform and inner loop any/all productivity gains are imperative.

We will build a ToDo app during the session – while this example workshop based on <https://github.com/datastaxdevs/workshop-intro-quarkus-cassandra>, with hard hitting demos won't transform you into a power cloud-native manager overnight, you'll learn and take some baby steps towards easing the transition. In this session, we will start from scratch by installing GraalVM and will learn how to hook up the Quarkus app to AstraDB, containerize it and end up packaging it as a native app (goodbye JVM), all from a cloud-based IDE. You will also look at features of the platform such as hot reloading, debugging, etc., which make development a joy again!

After attending this “workshop” session you will better understand how Quarkus powers your Java developers to build reactive applications with responsive data access on Kubernetes today!

## **PreCompiler Day 2 Afternoon**

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### **Back to the Basics: Software Done Properly**

*Brian Korzynski & Hussein Farran*

Ever wonder how large companies like Apple and Netflix write applications that always just seem to work? Wonder, how we too, can write applications that can easily adapt to changing business requirements, ease the development process, and support large customer bases without a large support department? During this workshop we will explore some industry best practices, hear about things that have actually worked in production, and participate in exercises of how to apply all of this into our everyday jobs. Some topics include proper architecture, DI, testing, patterns, custom NuGet feeds, and other topics that bring these all together.

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# Designing and Architecting Cloud-Native Apps in Microsoft Azure - Part 2

*Kevin Grossnicklaus*

During this all day workshop we will demonstrate how to plan for and manage the full lifecycle of a modern application using the latest Microsoft Azure resources and tooling. We will start with a high level overview of a wide variety of architectural and Cloud-based considerations and we will then work our way down through a complete setup of a basic application all the way from a clean Azure DevOps and GIT repo setup, through bootstrapping an empty UI in Angular and a robust API using .NET Core/C#. We will demonstrate how to fully automate the deployment and development lifecycle of these application components up to Azure. We will ultimately take the same Azure configuration and convert it to a full “infrastructure as code” setup using Terraform.

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- Architectures in Azure
- Framework choices from .NET Core to NodeJS to Mobile
- GIT Best Practices for Branching and Versioning
- Database Options and Implications
- Azure DevOps Pipelines
- Azure Planning and Pricing
- Containerization
- Ongoing Monitoring and Support

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## Build Your First 2D Game with Godot

*Brandon Lewis*

Have you ever been curious about what it takes to build your own game but didn't know where to start? Perhaps you were struck by analysis paralysis while trying to answer any of the endless questions a beginner may have (such as deciding on a game engine, coming up with a game idea, or how to find art/audio assets)? Sometimes the best action to take when trying to learn something new is to just jump right in, and there's no better time to do so than when you have a helping hand to guide you through those intimidating beginning stages!

Godot Engine is free and open-source, making it a great option to start any game development journey. During this session, attendees will learn about Godot's game development ecosystem and learn how to implement a series of gameplay features commonly found in almost every game regardless of game size or complexity (such as node tree management, handling character movement, collision detection, HUD and UI displays, and scene transitions). By the end of the session, you will have built almost entirely from scratch your very own playable two-dimensional platformer game. The goal is for you to walk away from this session with a sturdy engine-agnostic foundational knowledge about game development, as well as having learned enough about Godot to continue on your own personal game development path.

Godot development is done via its own dynamically typed language "GDScript", which syntactically resembles Python. No game development experience or knowledge is required to attend this session. Godot is entirely free, and visual/audio assets will be provided to you at no cost (all assets are free and fall under the Creative Commons CC0 1.0 Universal license). Come build a game and have some fun!

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## **Date with K8S, Kubernetes Hands On Workshop!**

*Barry Tarlton & Mark Ramsey*

Heard of Kubernetes, but never had the chance to get hands-on with it? Then this session is for you! Kubernetes is taking the industry by storm as a reliable way to manage your running containers. Through our labs, learn to run your Docker containers in Kubernetes and to create robust and re-useable infrastructure as code to automate deployments. How do you handle securing passwords and externalizing configurations? How do you scale and provide load balancing? This session will teach you to handle those scenarios and many more! You will learn to create and manage Pods, Deployments, Services, and Ingresses by the time you leave this session! This is your chance for a hands on keyboard opportunity to find out what's up with the Kubernetes craze that's sweeping the nation!

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## **End-to-End, Component & API Testing with Cypress**

*Jordan Powell*

In a world where continuous deployment has become the norm, testing is no longer an option but a necessity. Even the smallest of changes can have major impact on our software. In this workshop I will show you how to test your applications the way your users actually use it. We will take a deep dive into End-to-End (E2E) testing and learning how to test your individual components in isolation using Component Testing. We will even learn how to test APIs using Cypress. By the end you will be equipped with everything you need to write automated tests using Cypress.

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## **Beyond the Cache with Redis + Node.js**

*Guy Royse*

If you're like a lot of developers, you've probably used Redis. You've probably used it as a cache—which it does amazingly—and you've probably cached strings. But Redis is much, much more than just a cache. It can be a message broker using queues, streams, and pub-sub. It can be a multi-model, in-memory, NoSQL database storing all sorts of data structures like hashes, lists, sets, and binary data. It can even be extended using modules to add new commands, new data structures, and new capabilities.

In this workshop, I'll show you how to take full advantage of all that Redis can do from your Node.js applications—starting from the very beginning with a primer on Redis. We'll cover the basics—talking to Redis from the command line and exploring its capabilities. Then, we'll take advantage of those capabilities from Node.js, building some simple yet surprising powerful applications using the low-level Node.js client—Node Redis.

After that, we'll look at ways to extend Redis with modules, with an emphasis on using RediSearch to find the data and RedisJSON to store documents. We'll finish the day by looking at Redis OM, a high-level library that uses some of these modules to map JSON documents to objects in your application.

Redis does a lot more than you probably thought. The whole point of this workshop is to show you that “more” and give you the knowledge to take greater advantage of the Redis you are already using. So, let’s start learning and start using!

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## **Building a Multi-Platform Application**

*Bruce Abernethy & Chris Butcher*

This session is designed for developers who are looking to expand their abilities into multi-platform development. You should have experience in at least one development environment (i.e., web, mobile, desktop) and an object-oriented language (e.g. Java, C#, Python, Typescript).

Many modern applications do not stand alone and are more accurately a suite of many applications. These apps need to be able to work on multiple different platforms and look great with high performance. Apps may need functionality that is present on the web from any browser but also want a mobile app to enable smartphone features (e.g., notifications, camera, GPS, local storage). In addition, there will inevitably be administrative and reporting tools that look and work best on a desktop platform with a keyboard, a big screen, and access to printers and other devices. The capability of writing things once - from the user interface to authentication, to front-end business logic, to state management, to data access - and using this code for all the different platforms is a great benefit. This capability helps developers to streamline and accelerate the development, testing, and deployment process for all these different applications.

You will leave this session having built a multi-platform application from scratch that runs on whatever platforms you bring with you. All will run as web applications but will also be built on other platforms, including iOS, Android, Windows, macOS, and Linux. We will cover the basics of creating a Flutter application, including the User Interface, Data Classes, State Management, API access, and Navigation.

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## **Getting Started with Spring**

*Dan Vega & DaShaun Carter*

If you’re a Java developer and want to learn about the most popular frameworks ever created this session is for you. You are going to learn what Spring is used for and how it can make you a more productive developer. It does this by providing you with the infrastructure to build enterprise-ready applications and allowing you to focus on features.

After an introduction to Spring, you will get familiar with the framework by building out a practical application. Along the way, you will learn about the core principles of Spring like Inversion of Control (IoC), dependency injection, beans, application context, and more.

Building a new application isn’t much use if you can’t get it to production. You will learn about the different approaches to moving your application to the greatest place on the planet, production! By the end of this session, you will have what you need to start building enterprise-grade applications with Spring.

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## **Event Storming Workshop**

*Barry Stahl*

Event storming is a process for modeling a business domain from the perspective of the business experts. It comes out of the Domain Driven Design world and has been used by many with great success. Event Storming can help your team:

- ? Build an understanding of a domain
- ? Define the scopes and interactions of the components of a system
- ? Rapidly discover unknown-unknowns
- ? Expose the intricacies of the business domain
- ? Identify the areas of greatest risk

The artifacts produced in this process are useful to both the business experts, to help document their domain, and the engineers building systems for that domain, and are completely implementation agnostic.

In this session, we will explore the process of Event Storming. We will define the goals and expected outputs of the process, and walk through a simple example so that you are ready to bring this important practice into your organization.

## **General Session Day 1 8:00 AM**

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### **Automating Almost All Application Security Things with CI/CD -- Even Honeypots!**

*Mick Douglas*

Application Security is hard... if you do it wrong. IT Departments are doing a woefully poor job at application security based on...checks news headlines...all the data. Improving your organization's application security posture can seem like a daunting and expensive project that must compete with more urgent priorities. Fortunately, you live in an era of automated application pipelines! In this session, you'll learn how to "shift left" with application security by incorporating Dynamic Application Security Testing (DAST) and Active Defense (yes, honeypots!) into your CI/CD pipelines, adding significant protection for your applications with minimal effort. We'll go far further than many feel possible... attendees will learn they have far more options in their CI/CD than they realize!

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### **Evolving your APIs, a step-by-step approach**

*Nicolas Fränkel*

When you publish your first HTTP API, you're more focused on short-term issues than planning for the future. However, chances are you'll be successful, and you'll "hit the wall". How do you evolve your API without breaking the contract with your existing users?

In this talk, I'll first show you some tips and tricks to achieve that: moving your endpoints, deprecating them, monitoring who's using them, and letting users know about the new endpoints. The talk is demo-based, and I'll use the Apache APISIX project for it.

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### **Developing and Deploying a Static Web App with Blazor and Azure Functions**

*Matthias Koch*

Blazor brings C# to the browser. Azure Functions lets your back-end scale. But how do you get started creating an Azure Static Web App using these two and how do you implement a rock-solid CI/CD pipeline for it?

We will walk through the whole process! Starting from writing and debugging your Blazor app and Functions API, we will also unit test our front and back-end and glue them together with the authentication service emulator for local development. For CI/CD and service management needs, like staging environments and user invitations, we will conclude with a scalable build pipeline that can be flexibly reused for your future projects!

Come to this talk when you want to improve your development process with the best tooling and focus on the business value of your app!

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## **Master All Frontends in Real-Time with React Native**

*Stephen Shary*

Front-end development is fragmented with many different stacks that are tailored to: web, Android, or iOS. We demonstrate live how React Native can be used to develop on all three platforms at the same time. We will show how to kick start a new project, make it run on all three platforms and then also (with some luck) deploy it on the phones in the audience. Learn the pros and cons of using a cross-platform technology to solve feature parity, infrequent deployments, and disparate developer skillsets.

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## **Build Intelligent applications with ML.NET and Windows Machine Learning**

*Ron Dagdag*

Need to integrate trained machine learning models into Windows apps? In this session, we will look into how Windows Machine Learning can transform applications with the power of artificial intelligence and run it on the devices by taking full advantage of hardware acceleration. We will walk thru and learn how to train a model with ML.NET Model Builder and inference with Windows Machine Learning.

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## **Going Old School with the CLI - Windows Terminal & WSL**

*Mike Nelson*

The classic Windows Terminal app allowed for simple command line integrations. But now, the new Windows Terminal app, along with the Windows Subsystem for Linux (WSL), can generate some really cool interaction between you and the OS, for development and just daily work. When talking about the Terminal, we will explore all the ways to use it, connecting to different devices and applications, customizing it, and provide a bunch of tips and tricks! Then, we'll move on to WSL and WSLg, showing not only the interoperability between Windows and Linux, but also WSLg's new graphical experience. We will share all tips, session files, settings files, and much more!

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## **Building With Entity Framework Scaffolding**



*Sean Beougher*

Wonder if there is more to Entity Framework than Code First? Wonder if it is possible to create objects from database tables? Here is your chance to learn about the other, bizarre side that people rarely talk about. Learn how to gain more power over your apps. Take your first step to the true power of Entity Framework.

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## **Flour Water Salt Elixir: The Fundamentals of Artisanal Hardware Hacking**

*Ole Michaelis*

What's more fun than telling computers what to do? Combining programming with other activities you love! As a bread lover and amateur baker, that was hitting the sweet spot in sourdough fermentation using a Raspberry PI, sensors, and some 3D printing.

In this talk, you'll learn about the fundamentals of interacting with the physical world from Elixir using the Nerves framework. You'll hear fun stories about implementing bewitched protocols to get data out of sensors, and along the way we'll talk about the basics of naturally-leavened bread. Hopefully you'll walk away inspired to hack your hobby!

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## **Performant Teams: Autonomy, Mastery, and Purpose**

*Steve Green*

Building successful teams requires the same rigor that goes into creating quality software. Maximizing team potential requires more than just good process. All high performing teams require three fundamental elements: autonomy, mastery and purpose. To put it simply, these teams deeply long to have the freedom to become better at work that is meaningful to them. Inspired by Daniel Pink's Drive, Erika Andersen's Be Bad First, and Will Larson's An Elegant Puzzle: Systems of Engineering Management this session will explore strategies and techniques to enhance your team. This will include defining the four states of a team, identifying the essential elements of autonomy, how to build a mindset around mastery, finding Goldilocks tasks, analyzing the impact of routine vs. non-routine work, presenting a framework for discovering purpose, using the power of storytelling, tactics for measuring team progress, and how to guide organizational change. By the end of the session, attendees will gain insights on how to leverage systems thinking to establish autonomy, mastery and purpose.

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## **A11y Test Driven Razor Components**

*Ed Charbeneau*

In this Blazor session we'll look at techniques you can use to unit test components for accessibility. Using bUnit tests we can ensure our components are screen reader friendly and keyboard navigable. Learn to create tests that focus on a11y specific features at the very start of the SDLC.

In an effort to learn more about accessibility on the web, I decided to experiment with an idea. I set out to build a component using test-driven development (TDD), but this time with an emphasis on accessibility. I was hard-pressed to find resources or guidance on the subject. However, I was able to find some generic examples of best practices to guide the way.

When the experiment was finished, I had a completed example that was thoroughly tested to specification. The best part was how much I learned about accessibility, keyboard navigation and unit

testing components. In this session your speakers will teach the key concepts and findings from the process and show you how to apply them in your next application.

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## **Orchestrating workflows is a 'cron-ic' systems problem. Airflow is the modern solution.**

*Jack Bennett*

As a developer, devops specialist, or SRE, you almost certainly have recurring computational jobs running on your systems. cron is the simple, time-tested sysadmin tool for making a Unix host run a task on a regular schedule.

However, with the ongoing migration to cloud-based microservices and APIs, many computational tasks have a large, complex, and widely distributed graph of upstream dependencies. These dependencies come in many different forms: for example, a file or other resource arrives; a service or API becomes available; a database finishes a maintenance task; the clock strikes midnight.

Teams that try to manage such complex dependencies with cron inevitably end up writing brittle, custom code and scripts to ensure that their jobs execute in the correct order.

This raises the question: how can a team more effectively define, manage, visualize, and monitor such complex workflows? The increasingly popular answer is Apache Airflow, the open-source system for workflow orchestration.

From this talk, you will learn about the use cases for Airflow, walk through some introductory examples of the Python code that defines workflows, and watch these workflows operating in real-time in the web UI. You will also learn about the rich ecosystem of open-source integrations and other tools that users have created and given back to the Airflow community.

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## **Think a Cloud Architect is all you need for a successful cloud journey? Think Again! "**

*Taranjeet Kaur*

Cloud Architect is easily among the top 5 most In Demand Tech Jobs today. Organizations are overtly interested in any resume which mentions cloud and architecture in the same page. Candidates with understanding of network , security and cloud services can easily land the job but what looks like a perfect match on surface might easily turn into a not so great experience for everyone involved.

As a Lead Cloud Architect for financial organization and leading multiple early cloud adopter teams, I have frequently experienced that Cloud Architect is an overloaded term and has been loosely used as an all-encompassing solution to the "Cloud Problems" that exist in organizations .

In this talk will be walking through the evolution journey of cloud architecture role and the way it fits differently in different organization based on their level of cloud maturity. We will be discussing the common challenges of cloud adoption and how refining roles for your cloud team(s) can directly impact the Cost and Experience of building solutions in Cloud.

## **General Session Day 1 9:15 AM**

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## Leadership Guide for the Reluctant Leader

*David Neal*

Regardless of the technology you know, regardless of the job title you have, you have amazing potential to impact your workplace, community, and beyond.

In this talk, I'll share a few candid stories of my career failures... I mean... learning opportunities. We'll start by debunking the myth that leadership == management. Next, we'll talk about some the attributes, behaviors and skills of good leaders. Last, we'll cover some practical steps and resources to accelerate your journey.

You'll walk away with some essential leadership skills I believe anyone can develop, and a good dose of encouragement to be more awesome!

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## Debugging Burnout

*Samuel Shaw*

Working in a product space requires knowing how to take a very complex problem and break it down into iterative chunks. Far too often, we're so wrapped up in the problems we're solving professionally, that we completely forget to introspectively look at ourselves and ask what problems in our own lives need solving. Burnout is real and worth addressing. But much like the dev process, understanding the "why" behind behavior leads to a more sustainable outcome.

This talk is a part of an ongoing conversation in life. We want to develop a framework and language to properly identify burnout and how we can work through it. Let's take some time in this iteration of the conversation and talk about what it is, why it's a problem, and how we can leverage tools at our disposal to help identify, address, and debug burnout.

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## Automating your smarthome without the cloud

*Seth Petry-Johnson*

Modern "smart" homes are dumb; your lights shouldn't stop working because your Internet is down, and your new doorbell shouldn't compromise your network security.

A smarter and more secure home doesn't depend on cloud services or a disparate array of apps to function, and it's easier than you might think to achieve total local control. A dash of technical knowledge, a dab of DIY elbow grease, and this session are all you need to get started.

In this session you'll learn how to choose and install a local hub (Home Assistant vs Hubitat vs HomeKit), which devices work best (Zigbee vs Z-Wave vs Wifi), and how to integrate lights, plugs, sensors, and switches without the cloud. You'll also learn how to add smart features like remote control and push notifications to your existing "dumb" appliances.

Come take a tour through the land of smart, local home automation and stop being dependent on someone else's computers!

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## Observability Made Easy with .NET 7 and OpenTelemetry

*Jimmy Bogard*

When something goes wrong in a single application, we get a nice stack trace. In a distributed system, we get almost nothing! We add some logging, but now we have to comb through logs to understand what led to failures.

Enter observability with OpenTelemetry, with its three pillars of logging, tracing, and metrics, providing comprehensive insights into our system.

In this talk, we'll look at the OpenTelemetry project, its goals, and its various standards and components. We'll also see how .NET 7 incorporates these standards into frameworks, platforms, and libraries. Finally, we'll see OpenTelemetry in action in a complex distributed system and see how easy it is to incorporate various observability tools such as Azure Monitor, Jaeger, Splunk, and more.

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## **I For One Welcome Our Robot Overlords: How To Build Trust In Test Automation**

*Maciej Konkolowicz*

Nowadays, creating test automation is table stakes for ensuring a minimal level of quality during the software development life cycle. Software geeks all across the world understand that creating automated tests is almost a non negotiable. But what happens after the tests are created? How do we know they actually help? How do we ensure the juice is carefully squeezed, creating a trusted, respected and ever evolving safety net? If any of these questions seem familiar conundrums, come join me as I share how my team was able to create a test automation mindset, which helps us prevent bugs and encourages collaboration in a cross functional, distributed, always changing space. This cross-role talk will focus on how to engage cross functional teams to build a cross team testing suite, and is suited to all technical levels. Attendees will walk away with a repeatable process aimed at constantly improving trust and impact of test automation, leading to quicker defect detection.

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## **Easy Domain Driven Design**

*Ryan Foote*

Software development is hard. Even with the best intentions, and the most deliberate design processes, we often end up mired in the “big ball of mud” scenario. Where modifications are tedious, enhancements are fraught with unknown side-effects, and troubleshooting is downright nasty. By practicing Domain Driven Design, you can mitigate these issues that contribute to the overall complexity of large applications.

Our goal is to thoroughly cover the core concepts and to walk away with the ability to employ practical Domain Driven Design in your own applications.

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## **What is a Vue Component?**

*Mark Noonan*

Pretty much anything smaller than a whole application can be considered a "component", but when we want to talk about them with other people, it can help to be more specific.

In this talk let's use examples and try to separate out (and name) different kinds of components based

on their role in an application in the designs we are building with Vue. We'll start with a basic component and work our way up, taking some time along the way to talk about props, slots, and the component lifecycle.

Spotting patterns in how we use components can help us understand our front-end architecture and testing needs, find some language that we can use when talking with designers and other stakeholders about "components" as they see them, and be more clear when communicating with other developers in our own team about the actual Vue components that implement a given design.

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## **Intro to PostgreSQL: What to Know When You're Called In To Help!**

*Ryan Booz*

PostgreSQL has risen to be the dominant choice for new projects and cost-saving migrations in an increasingly cloud-first, price-conscious world. Additionally, all three major cloud providers have invested heavily in PostgreSQL and their own forks, signaling a continued shift in the DBMS market. This increases the likelihood that you will be asked to manage an alternative RDBMS like PostgreSQL in the next 3-5 years.

In this session, I'll briefly introduce the history of PostgreSQL and what has allowed it to shine in this modern age. Next, we'll look at 10 areas of PostgreSQL including community, tooling, configuration, data types, and SQL differences. As a former SQL Server developer, I'll demonstrate how to transfer the knowledge you already have to how PostgreSQL works so that you can succeed faster on your next project.

By the end of the session, you will have enough information to connect to PostgreSQL with free tooling, modify common SQL to run correctly, get information about the state of the database, and help with basic query tuning.

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## **Fruitful Flutter**

*Bruce Abernethy*

The old saying goes "If you want to go Fast, go Alone. If you want to go Far, go Together." In four years, Flutter has gone from being an "interesting experiment" at Google, to having over half-a-million apps in app stores worldwide. With teams of developers working together on creating and maintaining production business-critical applications, it is important to look at best practices and architectures that will allow a team of diverse developers to work well together on successful and continuous deployments. This session will look at the glue that holds successful apps and teams together, including common training, standards, libraries, and processes that combine to enable clean code and architectures for fruitful Flutter application development. The content from this talk comes from about four years of Flutter experience and two years of working with teams on professional Flutter development, scaling rapidly now in 2022. About half of the information is architectural and soft skills, while the other half will be Flutter/Dart specific at a basic to intermediate level.

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## **Learning Functional Programming Through Construction: First Principles**

*Cameron Presley*

In the past five years, functional programming has increased dramatically in popularity which has led to an explosion of resources for learning these concepts. But, between languages (Haskell, Elm,

PureScript, F#), libraries (Ramda, fp-ts), and concepts (Monads, Monoids, Functors), it can be overwhelming in determining where to start and how to begin.

In this session, attendees will learn the three fundamental concepts of functional programming: immutability, pure functions, and composition, and how these three concepts when combined give the basis to functional programming. These concepts will be demonstrated through the implementation of the Mars Rover kata, where the idea of thinking functionally will be explored.

Intended for those who have experience with TypeScript or C#, by the end of this presentation, attendees will understand how pure functions lead to easier-to-test code, how immutability makes debugging easier, and how the power of composition allows for the building of bigger applications by combining smaller applications.

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## **Leveraging Art and Science for Effective Data Storytelling: From Concept to Reality**

*Dr. Joe Perez*

Anyone can make a pretty bar graph, but can you make sound decisions based on that graph? Is it actionable, or is it only a concept? How do you turn flashy concepts into actionable visualizations? Can you see the end result of those concepts; will they ever become reality? Do you have the vision and drive to figure out how to get from today to tomorrow before it becomes yesterday?

American mathematician John Tukey once said, "The greatest value of a picture is when it forces us to notice what we never expected to see." What value do you see in your data? And what ideas do you have when you see it? Learn how you can capitalize on your ideas and turn them into reality by blending internal with external, leveraging them into a cohesive strategy for both the short term AND the long term. See the five "Stages of the Spectrum" in action while discovering the difference between impact and influence, and how that difference plays into making data actionable.

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## **Introduction to MLOps**

*Robert Herbig*

You've decided Machine Learning (ML) can help your customers? Great! ML is very accessible these days. But taking those ML solutions into production in a way that is repeatable, maintainable, and scalable can be challenging. MLOps draws from DevOps and Agile practices to reduce these risks and improve outcomes.

This talk is an introduction to MLOps, including what it is, how it is similar & different from other \*Ops practices, and then we'll apply these MLOps concepts to three case studies during the session.

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## **Writing the Next Great Tech Book**

*Brian MacDonald*

You have an idea for the next great technical book. Maybe you're excited about a new technology that nobody's written about yet. Maybe you're unimpressed with the books that are out there on your favorite topic. Maybe writing a book is on your bucket list. This session will help your idea reach its potential as a published book. Technical publishing is an opaque process with a lot of moving parts,

which can be confusing for outsiders to navigate. This session will guide you through the steps you should take to turn an idea into a proposal that a publisher will accept, and what to expect from the publishing experience.

Creating a great technical book takes more than a good idea. It also requires a knowledge of the market, to determine whether there's an audience willing to buy, or whether the space is too crowded to accept new entries. Publishers vary in their approach and target markets, so you need to determine which one will provide the best chance of success. Self-publishing is an option, but carries its own risks and benefits. Doing the setup work that you may not have thought about yet will help you create a proposal that will appeal to publishers, and will also make the writing process easier.

Once you have a contract with a publisher, or have decided to self-publish, it's more than just a matter of putting the words in order. Finding the right environment, setting a schedule, and communicating with your editor are all critical to success. This session will explain how the process works, highlight the parts you may not know, and give you advice on how not to get overwhelmed by your project.

This talk will cover:

- The various motivations for writing a tech book
- Traditional vs. self-publishing
- How to craft a quality proposal
- What to expect from the publishing process
- How to make writing easier and more enjoyable

## General Session Day 1 10:30 AM

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### The State of Modern APIs - Comparing GraphQL, REST, and gRPC

*Spencer Schneidenbach*

APIs are a huge part of our connected world - they drive our apps and are the points of integration between applications. There are a number of technologies available that have emerged as major players in the API space, from REST to GraphQL to gRPC - but with them comes a lot of hype, dogma, and misinformation. How do you best evaluate which technology to use when building out a new API?

In this session, we'll compare and contrast three major API technology options, their ecosystems, and their adoption and learning curves. We'll discuss each technologies' strengths and optimal use cases, along with the weaknesses/challenges found with adopting any of the technologies.

May the best API win...! (Hint: there isn't one.)

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### CI/CD with Github Actions

*Chris Ayers*

Learn about building and deploying applications using Github Actions. We will learn diverse ways to trigger our builds and build different types of applications.

After this session you'll be able to build and deploy your software from GitHub. You will understand:

- GitHub Actions Runners
- YAML workflow syntax

- Workflow Triggers
  - Variables
  - Job Dependencies
  - Conditionals
  - Matrix Builds
  - Outputs
  - Environments
  - Secrets
  - Deployments to Container Registries & Azure
- 

## **Secure Application Design and Development With Threat Modeling**

*Joe Kuemerle*

In this session you will get an overview of threat modeling techniques that help you to build the most secure application possible.

By building a threat model describing the various components of your application and how data flows through it, you will be better prepared to defend your application from attacks, improve the performance and scalability of your application, ensure consistent architecture and have some great assets easily bring new developers up to speed on all the parts of your application.

This session will dive into threat modeling and include some hands on activities to help you find and fix security vulnerabilities before any code is written.

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## **Recent Updates to the SQL Developer's Toolbox**

*Erin Stellato*

There are a lot of tools available for working with SQL Server and Azure SQL, but which ones can be the most helpful to developers? Come to this session to learn more about different tools that can help you when developing against your SQL database environment. Some of these tools might end up in the bottom of your toolbox and only come out for "special occasions" while others might become indispensable to your day-to-day work. We'll cover command line tools to GUIs and explain what you need to use, and when. Whether you're all in on Azure or dedicated to on prem, there are new advances in tools for you.

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## **Don't Just Fix It, Learn From It - The Importance of Incident Management when Something Breaks**

*Rick Clymer*

Panic messages saying the system is having issues. Your phone buzzing from your alert system sending you text's about the system being down. Intuition kicks in and tells you solve this issue as fast as possible and get back to your day. While you have solved your issue at hand, you're not setting yourself up for future success and preventing doing the same thing next time around.

In this session, we will discuss the importance of not just solving the issue at hand but how to learn and improve your processes. We'll review topics such as documenting as the outcomes as it is occurring, the importance of playbooks, and leading a successful post mortem to make sure this isn't a fix and forget situation. We'll go thru a mock incident to see how we can incorporate each of these and other processes throughout to ensure that we learn from our mistakes to prevent similar



scenarios from happening in the future.

While getting your system usable for your end users should be goal number 1, the very next goal is not falling into a similar state in the future. Putting this process in place, you will have the tools in your belt to prevent this from happening again.

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## **Modern Android Development**

*Michael Yotive*

Can you believe Android has been around since 2008? Since its release, the Android ecosystem has evolved dramatically. From new IDEs and languages to fancy threading models and opinionated architecture components, best practices for "Modern Android" are a moving target.

In this talk, I will reflect upon the last decade of Android development to help navigate what we did in the past and where we are going. The scope will be broad and varied, but in the end, I hope to showcase how you can build scalable, flexible, and testable Android apps, which has traditionally been difficult.

Are you a new developer looking to get started on the Android platform? Are you a seasoned native developer looking to reflect on what has changed over the years? Come to this talk, and I will attempt to guide you through the history of Android to provide context and guidance on what makes Android a joy to work on these days.

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## **Why Data Science and UX Research should be Best Friends**

*Grishma Jena*

Today's world generates data at unbelievably rapid rates. It is important to leverage the available data to better understand the bigger picture. Data scientists and UX researchers often have the same destination but different routes. This talk gives an overview of how Data Science can complement UX research, including quantitative and qualitative methods. It gives a quick overview of UX research and the Data Science pipeline along with describing useful applications for UX research like identifying users to interview, finding different segments of customers and generating data for usability studies. It highlights interesting instances of how the two fields can help each using real-life examples from Spotify, Airbnb, Tesla, etc.

By the end of this session, audience members will have a better grasp of the capabilities and processes of Data Science. They will be able to identify opportunities where Data Science can support and enhance UX research. They will feel motivated to encourage their UX research and Data Science teams to work closer together to understand business and user needs.

P.S. For more on Data Science, attend my talk on 'Demystifying Data Science' on Friday.

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## **Neurodiversity, Productivity, and Communication – A Survival Guide**

*Cassandra Faris*

We live in a world where it's easy to be overstimulated and distracted. The more virtual our world becomes, the harder it is to focus, communicate, and complete tasks. This is especially challenging for people with neurodiversities such as ADHD, Autism, and Dyslexia, and those that support them.

The tech industry has a higher than average neurodiverse population, creating a unique set of time management and communication challenges. In this session, you'll learn what it means to be neurodiverse and how it affects people at work. Based on scientific research and firsthand experience, we'll discuss methods for maximizing productivity and focus. You'll also learn how to communicate more effectively when everything feels overwhelming so you can get the support you need. While the focus is on neurodiversity, this session is designed for anyone who needs help navigating our increasingly distracting world. By the time you leave, you'll have tools and techniques you can use to be more productive and less stressed - yes, that's possible!

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## **Multi-Cloud on Kubernetes: A Practitioners Guide**

*Rags Srinivas*

Kubernetes as a platform is spurring the growth of cloud native platforms. Stateful applications increasingly leverage the scale and self-healing properties of Kubernetes. Kubernetes was originally intended for stateless applications, and Cloud Native databases have had to work around some of the sharp edges of the platform to reap these benefits.

The k8ssandra open source project was intended to bring Cassandra's advantages - like durability and linear scaling - to Kubernetes to make it easier for operators, developers and SREs to deploy a cloud native data store at scale. The implementation is based on a hierarchical set of Kubernetes operators in this evolving journey -- from a cass operator for Cassandra related ops to K8ssandra operator for multi-cluster operations.

Attend this session to get a sneak peek on some of the multi-cluster challenges with Kubernetes in general and how we're overcoming them with the k8ssandra operator. We will look at the stages of how the k8ssandra project is evolving to support multi-region and multi-cloud in the future. Along this journey we will look at practical implementations on GKE and kubefed on EKS for multi region.

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## **Don't Be Afraid Of The Dark**

*Ian Malpass*

As DevOps practitioners, we are concerned with both the development of our systems, and their operation in production. With new features, in particular, we are often confronted with doubt and uncertainty about how they'll behave when they actually reach a live environment. Does that query perform well under load? Have we scaled our capacity enough? Is it worth the effort of adding the caching layer? Does our new system fail as gracefully as we imagined? Are we going to spend the weeks after launch scrambling to fix things? Before launch we are typically in the dark, but the dark doesn't have to be scary - in fact it can be our best friend and ally.

In this talk, I'll cover approaches for testing at production scale before release, the benefits and limitations of different techniques, and how to plan for building confidence (with your dev team and your business stakeholders) during the development process. By the end of it, you'll be ready to take advantage of your "dark" time, and for your next launch to be the best kind of boring.

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## **Sell Your SaaS! A Guide for Technical Founders**

*Jason Gilmore*

You've eaten all the ramen, drank all of the kombucha, and written all the code. Congratulations! Your

SaaS is a success, and potential suitors have been inquiring about an acquisition. Now what?

In this session you'll learn about the SaaS acquisition process, starting with the issuance of an LOI (letter of intent) and concluding with the closing paperwork. Along the way we'll answer your burning acquisition questions, including:

- \* Every Tuesday we flip a secret switch in the office basement to flush a memory leak. Will our technical debt torpedo the deal?
- \* What are the ramifications if the founder doesn't stay with the company? What will happen to the employees?
- \* We are pretty sure but can't pinky swear that the company owns all of the intellectual property used in our SaaS. How sure should we be?
- \* Will the acquirer mind if company finances are managed in a Google Sheet?
- \* How important are SaaS metrics like CAC, LTV, and NRR?
- \* Our team doesn't wear Allbirds or Patagonia. Does it matter?

Not only will the information conveyed in this session help founders to better prepare for a company sale, but it will also provide valuable insights into how instituting just a few best practices can radically improve the present business.

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## Reactivity in The Web With Svelte

*Brendan Todahl*

Modern front-end frameworks claim to be reactive when state changes occur which updates the views at runtime. The technologies these frameworks depend on to do so aren't the most optimal such as using the Virtual DOM, DOM diffing, and more. Svelte is a compiler that runs at build time instead to optimize what state changes are possible in your app so that it can be more light-weight and respond faster as state changes occur.

In this talk, we will explore the basics of Svelte. We will look at code from various frameworks such as React, Vue.js and Svelte side-by-side and compare how they each tackle various problems facing modern front-end frameworks.

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## Event Messaging and Streaming with Apache Pulsar

*Mary Grygleski*

When it comes to distributed, event-driven messaging systems, we usually see them supporting either one of two types of semantics: streaming, or queueing, and rarely do we find a platform that supports both. In this presentation, we'll first get an introduction and some clarifications of event-driven versus message-driven systems, event streams, and stream processing. We'll then take a look at Apache Pulsar which offers a very unique capability in modern, cloud-native applications and architecture, in which its platform supports both Pub-Sub and Message Queues, and extends into streams processing as well as performs message mediation & transformation. We will look at how it relies on Apache Bookkeeper for its durable, scalable, and performant storage of log streams, and

leverages on Apache Zookeeper. We will also see how Pulsar is meant to bring the best of other systems, such as how it fills the gaps that Kafka has and extends its streaming capability in the complex cloud world.

## General Session Day 1 11:45 AM

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### Designing Real-time Web Applications

*Timothy Mecklem*

Near-real-time web applications have become increasingly common with advancements in event-driven server-side systems, websockets, and Javascript frameworks. Gone are the days of the user having to mash the refresh button to see updates to data that frequently changes. As a product development team, you can now send near-real-time updates to every user on your site about every change that happens... but should you?

In this talk, we'll cover some of the practical design questions we've learned to consider when deciding how and when to notify users of changes as well as how to handle things when the connection breaks. When the session ends, you'll have some ideas from real-world examples to ensure your users get the Goldilocks experience... not so much that it overwhelms them, not so little so that they're making decisions on stale data, but just the right amount of timely information.

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### This is a Promise That You'll Understand Asynchronous Programming with JavaScript

*Brandon Bruno*

JavaScript is changing faster than ever with a yearly release cadence that brings useful syntax tweaks, new APIs, and updated language functionality. Of the dozens of new features added to JavaScript over the last ten years, Promises stand out as one of the most essential yet most difficult to understand for both backend and frontend developers. If you're looking to finally understand the 'what', 'why', and 'how' of Promises, this is your ELI5 ("explain like I'm five") moment.

Let's learn about asynchronous programming in JavaScript by understanding the fundamentals of Promises: why they were added to the language, what you need to write your own, how async/await fix Promise chaining, recent API changes, and much more. This session will introduce the basics of Promises, then present examples and techniques that will help you fully utilize Promises in your code today.

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### Thinking Architecturally

*Nathaniel Schutta*

Rich Hickey once said programmers know the benefits of everything and the trade offs of nothing...an approach that can lead a project down a path of frustrated developers and unhappy customers. As architects though, we must consider the trade offs of every new library, language, pattern or approach and quickly make decisions often with incomplete information. How should we think about the inevitable technology choices we have to make on a project? How do we balance competing agendas? How do we keep our team happy and excited without chasing every new thing that someone finds on the inner webs?

As architects it is our responsibility to effectively guide our teams on the technology journey. In this talk I will outline the importance of trade offs, how we can analyze new technologies and how we can effectively capture the inevitable architectural decisions we will make. I will also explore the value of fitness functions as a way of ensuring the decisions we make are actually reflected in the code base.

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## **From Conception to Production -- Planning out your next big idea**

*Derek Mulhausen*

So you've got a great idea, but now what? You need to communicate the idea to anybody involved with the project from investors to developers and management. You also need a blueprint to know what to develop so that you are not wasting any of your own valuable time.

In this session, we will cover hypothesis statements, customer focus, MVPs, personas, epics, features, interviews, and everything in between. You will walk away with confidence in how to get started with your own idea and tools to visualize and track your ideas.

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## **The Interview Lab: Understanding how to navigate interviews from either side of the table**

*Jennie Ocken*

At some point all of us will be involved in interviewing. Some days you will be sitting in the interviewee chair, trying to impress a panel of people who give only blank stares in return to your witty remarks. Other days you will be in the interviewer chair trying to judge a candidate's qualifications from answers to canned questions. After interviewing hundreds of people for all kinds of technical jobs, and advising candidates in all points of their career, I will give you the inside scope on what is happening and how to do better at this essential part of the job hunt process. Whether you are thinking about starting your own job hunt, or have been tapped to be on an interview panel, join this session to learn:

- How to understand a job description, how to vet a resume
  - Recruiters, contracts, aggregators, and how to understand the motivations of everyone involved
  - Different approaches for the technical, "culture fit", and soft skill parts of the job
  - Key questions you should be able to answer without asking directly and why you are being asked/asking certain questions
  - When and how to talk about money
- 

## **Finding Patterns in the Clouds**

*Steve Smith*

Cloud computing is quickly becoming the new normal for enterprise software developers. Whether it's more traditional Infrastructure-as-a-Service, container-based deployments, or fully serverless deployments, moving to the cloud offers something for almost every organization. But with it come new challenges for ensuring your applications are robust, scalable, fast, and don't overuse utilization-billed resources. Design patterns offer solutions to known challenges that can help you quickly recognize and address problems as you encounter them, saving you and your organization time and money. Come learn a few practical patterns that will help you avoid common problems with cloud-based systems.

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## **Observability vs. Performance Monitoring: What's the difference and why should I care?**

*Sarah Morgan*

What do you do with all of the data coming out of your systems? Are you spending time diagnosing issues in your distributed systems without a good understanding of how your microservices are built? As system complexity increases, the ability to understand the sum of the outputs becomes more and more difficult and the volume of data about your services becomes overwhelming. Luckily, having an observability mindset when instrumenting your outputs and leveraging the right tool for your team can help you cut through the noise and identify key offenders in your system and resolve them quickly and efficiently. In this talk, we will discuss the differences between traditional performance monitoring and observability and how to understand how they can independently and together ensure the health of your team and keep your end users (and your developers!) happy and focused on the right things.

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## **Cypress vs. Playwright: The best E2E testing frameworks go head-to-head**

*Kyle Whitaker*

Back when writing E2E tests with a framework like Protractor was still a thing, Cypress came along and changed the game. Cypress testing UX is best-in-class with its powerful replay and debugging capabilities. Just when you thought another framework could not possibly challenge Cypress, along came Playwright, crushing right through the limitations of Cypress. Playwright is cross-browser, cross-platform, cross-everything at its core. Yet, there is no clear winner.

In this session, we'll discuss the benefits and tradeoffs of both frameworks. We'll look at the code and execute tests side-by-side. And we'll review a case study of two IT projects within the same company who arrived at different decisions—one Cypress, the other Playwright. You be the judge. Which E2E testing framework is the better choice for your team or company? Cypress or Playwright? At the end of this session, you'll be able to confidently get started writing tests with both frameworks. You'll leave armed with the information and research you need to make a strong recommendation to your team.

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## **Let's Write Go: Beyond 101**

*Jesse O'Brien*

So, I've seen or done some tutorials in Go to get myself up and running. Maybe explored sites like gobyexample.com. What comes next? How are Go projects typically structured? How do dependencies work? What should I do for maximizing testability? What is context and how is it useful? How can I parallelize work in goroutines? This talk will cover things to do after learning the basic syntax of Go. It will include tips and tricks on testing and standard library feature coverage of things like goroutines and channels, tests fuzzing, http tests, graceful shutdown, and building good interfaces for composing behaviors.

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## **One config to rule them all! An introduction to Azure App Configuration.**

*Samuel Gomez*

You have an environment working properly when suddenly you start seeing weird behavior, you troubleshoot the issue and find out that someone accidentally checked in their local settings file. If you've run into this scenario or you are looking for options to manage your configurations this talk is

for you! Whether you have a .NET, Java, Python or Node.js application Azure App Configuration allows you to access and store your configuration values in the cloud. In this demo-heavy talk, you will learn how Azure App Configuration can help you avoid the previous scenario and what other benefits it can bring to your configuration management process.

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## **Building a Shared Component Library in Lit**

*Tim Huddle*

Multiple teams, using multiple JS frameworks, shipping multiple applications, but you want them all to have the same look and feel. Shared CSS is easy enough, but what about more complex/structured components like cards, notices, toasts (or snackbars depending on your lingo), etc. As an example, maybe you're using material design, and think you can just rely on each frameworks implementation. What if a framework doesn't have a material implementation? I can tell you from experience that the look and feel of each material library varies greatly across frameworks. How do you build a component library that's useable across all of the frameworks you might have to deal with?

The answer is: Lit. It compiles to completely standards-compliant web components, has reactive state, and is incredibly small. Every framework can utilize web components, and with the recent end of IE11 support there is no worries about browser compatibility. In this session we'll cover some of the basic features of Lit, and even live code a component from scratch to demonstrate how simple it can be to spin up a shared component library that everyone can use.

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## **This Is Fine - Firefighting for the DBA**

*Matt Gordon*

Whether you've been a DBA for a week, a year, or a decade, you've likely had that day where it felt like you were fighting multiple fires at the same time. That often makes you feel like you have no idea what you're doing - but you do. I've been both an on-call DBA and a consultant in my career so I've seen how to handle firestorms like this correctly - and how to set fire to everything by handling them wrong. Join me for an hour where I share some technical tips, some horror stories, and some success stories. Hopefully you will walk away with some tips to improve your incident response while improving your sanity during the storm as well!

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## **The Buddy System**

*Leah Vogel*

Onboarding new employees is a challenge all companies face. Studies show a correlation between successful onboarding and a new employee's success at their new role. Unfortunately - the converse is also true - when onboarding isn't smooth, employees have a significantly harder time integrating successfully into the company. Adding the additional complexity of the new remote workforce hasn't made this any easier - to say the least. So how do we do it?

In this talk I will share the way we approach onboarding where I work, using the buddy system. Together with some examples and definitions, I will provide some practical onboarding insights that you can adopt at your workplace starting today.

## **General Session Day 1 1:00 PM**

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## **From Create React App to Next.js**

*Avindra Fernando*

In recent years, React has become a widely adopted solution used by many development teams to build their web applications. Developers mostly use Create React App (CRA) to get started with React as it offers a modern build setup with no configuration.

Despite the benefits of CRA, we are now starting to experience performance issues and poor SEO in production. Thankfully with the Next.js framework, which leverages concepts like server-side rendering (SSR) it is now possible to address the above-mentioned challenges.

Come join me on a step by step journey, where we migrate our existing React app built with CRA to Next.js. After this session, you will be equipped to transform your codebase into a Next.js application.

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## **Knowing When To Move On**

*Daniel Davis*

Per the wise advice of the Gambler - "...know when to hold 'em, know when to fold 'em, know when to walk away, and know when to run." Whether you are all in and committed to a full time position or rolling the dice as an independent, this session is going to help you always walk away a winner. Not only will you gain expertise in identifying the signs that indicate it's time to leave, but you'll also learn how to take positive and constructive steps forward based on them. Additionally you'll acquire some helpful (perhaps not quite legal in casinos) tips and tricks to making sure you have a poker table full of folks ready to wager on you in the event the game goes south and you need a back up plan.

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## **Building a drone from scratch**

*Godfrey Nolan*

In this session we'll walk through all the components you need to build a drone from scratch. We'll look at the options for Frames, Motors, Controller, Telemetry Radios, ESCs, Batteries, Transmitters, as well as your Camera and Gimbal. While we're assembling the drone we'll explain each of the different components and how they contribute to the flying experience. If you've ever wondered what an IMU or ESC really does then this is the session for you.

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## **At The Helm of Kubernetes: Repeatable Infrastructure Creation for Mere Mortals**

*Rob Richardson*

As we get deeper into Kubernetes yaml files, we see a lot of duplication. Can we move to a higher level that eliminates this duplication? Let's look at Helm, a tool both for templating k8s yaml files and for installing complex infrastructure dependencies as one package. With Helm 3, we now have deeper integration and more security when working with Kubernetes. Join us on this path to a simpler, more repeatable, and more discoverable yaml experience.

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## **Give your APIs a REST & Make the move to GraphQL**

*Dan Vega*



In a world where multiple applications and devices are calling your APIs, you end up having to create custom endpoints for different views of your data. What if you could provide fewer endpoints and let the consumer decide on which data they need?

GraphQL is a query language for APIs and a runtime for fulfilling those queries with your existing data. GraphQL provides a complete and understandable description of the data in your API, gives clients the power to ask for exactly what they need and nothing more, makes it easier to evolve APIs over time, and enables powerful developer tools.

In this session, you will learn the basic concepts of GraphQL. You will then learn how to use GraphQL in your Java applications with Spring for GraphQL. By the end of this presentation, you will be able to write and validate queries, create your own GraphQL API and write automated tests against them.

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## **Principles of Code - Five Key Points to Better Systems**

*Justin Beall*

Languages and platforms come and go, but all code shares the same basic structures. Unfortunately, without a set of guiding principles, systems incur unnecessary technical debt as time, scope, and budget pressures force developers to cut corners for deadlines.

Then, what happens when the software created must adapt to an ever-changing environment? It seems to take twice as long to crank out new simple features or fix bugs. Stakeholders rarely empathize with the latest schedule. In the end, great engineers get blamed for past sins.

In this session, developers (of any language) will be equipped with a handful of practical principles to positively guide the design decisions imprinted within every line of written code that leads to healthy, stable products and systems.

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## **Shipping a Web App as a Mobile App in 2022**

*Kito Mann*

So you've got an amazing web app that you've written with your favorite web framework (React, Angular, Vue, or even pure Web Components). But you also need to ship it as an iOS app. And an Android app. Is there a way to deploy your web app on both platforms, have good performance, and still take advantage of native features? Yes, there is. Enter Capacitor, the open source successor to Cordova/PhoneGap. In this session, you'll learn how Capacitor apps work, how they're different than Cordova apps, and what it's like to build mobile apps using your existing JavaScript codebase. We'll also look at how you can use Capacitor plugins to take advantage of native features like the camera, wallet, geolocation, file system, haptics, and more. By the end of this session, you'll have a solid understanding of how to turn that amazing web app into an amazing mobile app.

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## **Session #H: Naming Things**

*Peter Ritchie*

There are 2 hard problems in computer science: cache invalidation, naming things, and off-by-1 errors. This session is about naming things. In software, we need to name classes, methods, properties, libraries, solutions, etc. We also have to give names to variables, parameters, namespaces, interfaces, services, resources, etc. And most of the time, they can't conflict.

Sometimes it's easy but sometimes it can be hard. We'll do a quick review of some of the easy guidelines that avoid some (somewhat easy) decisions then look into the things that require names that involve a deeper understanding of context. What the contexts are, their granularity, and how that can alleviate naming issues will be covered. How the types of contexts and their motivation and good compartmentalization make for easier naming will be detailed. We'll leverage some English grammar rules to relegate naming to a code smell—something recognizable with proven solutions. And finally, time permitting, some techniques and ideas to relegate \*naming is hard\* to problems of the past will be outlined.

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## Why We Don't Need More Women in Tech

*Tori Brenneison*

It's a common rallying cry: "We need more women in tech!"... but is it true? Is the solution to male-dominated technology workplaces simply to shovel more women into the talent pipeline? That's what we've been trying for the past decade... and it's not working, when over a third of women in technology report a desire to leave the industry within the next two years, and half of young women leave the field entirely by age 35.

Here's a wake-up call for men in the industry: there will be more women in tech, if and when you stop pushing them out.

(Yes, the vast majority of you mean well, but... let's be honest, things in this industry could be a lot better, and it's not women's responsibility to fix it up.)

This talk, given by a real, live woman technologist, examines the unconscious gender bias present in the tech industry and its effect on women's career trajectories. We'll look at the data surrounding women in technology, misogyny, and workplace attrition, the causes and impact of that attrition, and what has been done so far to try and address the issue, as well as discuss strategies for combating bias and installing inclusive, fair workplace practices. Attendees will get a glimpse into the working lives of women in the technology field, and, by the end of the session, be prepared to make their workplaces a better place... for everyone.

Note: for brevity and directness of impact, this talk specifically addresses issues affecting women in the technology industry. However, the strategies and suggested practices for furthering inclusion and fair workplace practices are directly applicable or easily translatable to other minority identities in tech, and also to non-tech workspaces.

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## Pour One Out for A11y

*Erissa Duvall*

The Web Content Accessibility Guidelines (WCAG) have become the baseline for most Accessibility regulations and standards with regards to digital content. WCAG is an expansive topic in and of itself. To help you get started on your learning journey; we will first start with the 4 core principles used to categorize the WCAG Guidelines, also known as the POUR Principles. In this talk, we will delve into what they are and what they mean.

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## Inclusive, Accessible Tech: Bias-Free Language in Code and Configurations

*Anne Gentle*

Heard of suss? You can suss out more information or you can find someone's information to be suss. "Suss" shows the flexibility of language. It's an ongoing process to change how we use certain words. It's important to choose words carefully to convey the correct meaning and avoid harmful subtext or exclusion. Let's explore some of the tools and triage methods that it takes from an engineering viewpoint to make bias-free choices. How can you ensure that biased words do not sneak into code, UI, docs, configurations, or our everyday language?

First, let's walk through how to take an inventory of assets from code to config files to API specifications to standards. Next, by placing those findings into categories, prioritize the work to substitute with inclusive alternatives. Let's examine some examples using both API and code assets. Next is a demonstration of how to automate analyzing your source code or documentation with a linter, looking for patterns based on rules that are fed into the tool.

What's in the future for these efforts? Inclusive language should expand beyond English and North America efforts. To do so, let's organize the work with automation tooling, as engineers do.

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## **Five Challenges in Real-time Stream Processing and Five Solutions**

*Fawaz Ghali*

Real-time stream processing is growing exponentially in recent years, businesses need to gather insights from real-time data as soon as it's generated. To do this, developers and software architects use various pipelines and tools to capture and process data in motion. Real-time stream processing has its own challenges such as testing and life-cycle management, scaling and performance, event time and late events, streaming fault tolerance, and processing guarantees. In this talk, I will address those challenges and demonstrate the best practices for real-time stream processing, from data ingestion to data processing with ultra-low latency at scale and at speed, using the Hazelcast platform. I will discuss how you can optimize your real-time streaming projects in the following areas: scalability, performance, failover, reliability, and data recovery.

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## **Help! I Need To UnSQLize My Application**

*Joel Lord*

More and more people are moving from old-school relational databases to a variant of NoSQL. If starting a green-field project with a document database is easy, it can be a different story when migrating from one to the other. Simply porting SQL tables to a collection might cause you more harm than good. In this talk, the attendees will learn about the basic concepts of document databases, and will then learn about data modeling in NoSQL.

## **General Session Day 1 3:30 PM**

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### **Effective Automated Testing - Lessons from 10 Years**

*Cory House*

Writing automated tests is hard. Why? Changing data, inconsistent behaviors, unreliable environments, tightly coupled code, and more. In this session, we'll explore approaches for overcoming these challenges and writing robust and comprehensive automated tests. Topics explored

will include mocking HTTP calls, creating effective test data, choosing between testing paradigms like unit, integration, and end-to-end tests, and custom dev tools. After this session, you'll walk away with new patterns and tools for comprehensively testing your app.

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## **Continuous Learning for Developers**

*Brian MacDonald*

The world of technology never stops moving, and developers are frequently told that they have to be constantly learning in order to keep up. Entire industries are devoted to helping developers stay on the cutting edge, and they offer a multitude of options and formats: books, video, online interactive programs. There's live training, both on-site and remote, small groups and large, and mixes of all of the above. Your time is valuable, so how do you get the maximum return for your investment? You've probably heard about learning styles, but recent evidence indicates they're not as useful as previously believed. Preferences and ingrained habits have more effect on learning and retention than an inherent style.

In this session, I'll introduce you to the various learning formats available, and provide some advice on selecting the one that best fits your needs, or those of your team. Your needs may vary depending on the situation: The resources you need to learn a new programming language probably aren't the same as the ones you'd use to learn a new version control system. Know how to identify a format that isn't working for you, and when to change it up. Cost plays a factor too, of course.

Attendees will learn:

- \* The available forms of continuous learning
- \* Some sources for finding these products, and what they cost
- \* How to identify the form that works best for you
- \* Evaluating whether education is working

With a little planning, you can make continuous learning something to get excited about.

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## **Binary Analysis for noobs - An Intro to Reverse Engineering**

*Jason Slagle*

Do you often find yourself wondering how security researchers discover bugs in systems? How do they earn bug bounties by examining existing software? Are you struggling in CTF challenges whenever you are fed a binary? If so this session is for you!

In this session, the attendees will look at an introduction to reverse engineering and binary analysis. This session will specifically focus on Ghidra and dotPeek to show how to decompile or disassemble Linux C binaries and .NET binaries for analysis. Specific focus will also be given to solving CTF challenges using these tools as a method of practicing and improving your skills.

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## **Don't put your messages in a bottle; Implement messaging patterns**

*Eldert Grootenboer*

When building enterprise solutions, messages are the heart of our communication. They convey commands and data between various systems and ensure that we can work in a decoupled, scalable, and distributed manner. Our messages represent value, so we can't just slip them in a bottle, toss

them into the ocean, and hope they arrive at their destination. Instead, we need a messaging backbone that can provide resilience and stability. Therefore, we implement proven messaging patterns, to ensure they are handled with the care they deserve.

In this session we will have a look at Azure Service Bus, and what role it takes in such designs. Through various demos, we will showcase its implementation with a wide variety of messaging patterns. As a result we come to understand how secure and reliable communication help us solve complex messaging challenges.

Come and learn about handling transactions involving different systems, implementing data consistency across them, and controlling intermittent and critical failures.

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## **Augmenting our World**

*Tommy Hartz*

Building custom AR applications is easier than you think! In this session, we will look at the past, present, and future of Augmented Reality. We will compare the various frameworks and tools for creating AR apps, and then look at some cool demos. Come ready to learn how to create impressive AR experiences with ease.

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## **How To Not Strangle Your Coworkers: Resolving Conflict with Collaboration**

*Arthur Doler*

Conflict at work is as inevitable as the tides - like the old joke says, if you put five software engineers in a room, you'll have seven opinions. Whether the conflict is over what language to use, what frameworks are the new hotness, or even just tabs vs spaces, conflict can get ugly. Tempers flare, positions are staked out in absolute terms, feelings are hurt, working relationships are destroyed... if only there were a way to avoid the negative consequences.

But what if there actually is? Let's take a journey together towards a wholly different approach to conflict - a collaborative one. In this talk, you'll learn how to use conflict to fuel better software, better teams, and better companies. You'll learn how to structure your team's environment to draw out good conflict, to squelch the bad conflict, and to handle conflict when it becomes personal. You'll hear about how to manage different confrontational styles, avoid self-sealing prophecies, and even how to deal with conflict when you lack control. Conflict should fuel your progress, not hinder it - and after this talk, you can make that happen.

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## **Artificial Intelligence Programming with T-SQL**

*Sam Nasr*

Artificial Intelligence has been available to developers via API or libraries for integration with Code. Now SQL Server offers Artificial Intelligence via T-SQL. In this session we'll look at specifying a model for making decisions about time series data, programming the model using T-SQL, and evaluating the results of the model.

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## **Foster a Culture of Learning Through Observability**

*Brooke Sargent*

Observability helps engineers understand the systems they have built, but it can also help engineers new to a team and even engineers new to tech in general understand the systems they will be working on.

This session explores how observability creates a learning culture, how every engineer on a team can benefit from observability, and how observability builds a foundation to enable onboarding new engineers more effectively, leveling up engineers, and taking on apprentice engineers.

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## **A Vibrant Visit With The Valuable and Versatile Visitor Design Pattern**

*Kelly Morrison*

Design patterns are popular with software designers, and the famous "Gang of Four" book on Design Patterns is an industry classic. Some of the classic patterns in that book are simple to understand and use, and many have been "baked into" programming languages and frameworks. However, some of the patterns are not immediately obvious, and the Visitor pattern is one of the most misunderstood patterns in the collection. In this session, we'll take a look at the Visitor pattern, what it does, how it may be implemented in popular languages such as Java and TypeScript, and we'll see some scenarios in which the pattern provides a simple solution to a complex problem, such as in navigating a complex data structure. You'll leave the session with a better understanding of this underused pattern and knowledge of when to apply it.

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## **Machine Learning and Accessibility: Solving complex inclusivity problems while learning AI**

*Ashley Stove*

How would you add descriptive alt text to hundreds of photos on your website at once? How would you add robust audio descriptions and transcripts to your videos? These are complex and important problems facing developers as they strive to increase the accessibility of their websites. However, these problems are manageable when you use machine learning tools that are available with a low learning curve. We will talk about the basics of machine learning, how to get started, and the positive impact that machine learning can have on the accessibility of a modern website.

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## **Introducing Event Sourcing into the Monolith: A War Story**

*Ole Michaelis*

Our 13-year-old Ruby on Rails app is well maintained and stable boring. Dealing with many unstable vendors, networks, and co-workers, we've struggled to keep track of our processes within the application and maintain an audit trail. We've been applying patches to symptoms ever since. When we finally decided to pivot in 2020 and switched a core part of the application to Event Sourcing, we immediately felt the relief of a reliable, traceable process. We also learned our lessons in introducing a pattern like this to an existing app. And now, it's time to share...

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## **Building in the Cloud with Bicep**

*Chris Ayers*

Infrastructure as Code (IaC) is a vital part of the operational excellence we strive for in modern scalable solutions. IaC allows us to create repeatable environments and reduce environmental drift. There are many flavors of IaC supporting Azure: ARM, Bicep, and Terraform.

Bicep simplifies the authoring experience over ARM with a cleaner syntax, improved type safety, and better support for modularity and code re-use. Bicep also differs from Terraform in how state is managed, simplifying the deployments.

In this session, we'll cover:

- Bicep Basics and Advanced Topics
- Parameters and variables
- Conditionals
- Loops
- Modules
- Private Registries
- CI/CD for Infrastructure as Code
- Repo structure and layout
- Deployment

After this Session you have the concepts and skills needed to build your infrastructure using Bicep.

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## **Socializing for Heuristics: How Social Media Made Me a Better Tester (and Human)**

*Hilary Weaver-Robb*

Social media isn't useless. It's not just for seeing what people are eating or watching, or networking with friends, colleagues, and acquaintances across the globe. While I have met some amazing people on Twitter and other social platforms that have changed my life, I have also gained something even better for my career as a tester: heuristics. Heuristics are the "rough and ready" rules that, as a tester, allow us to find common bugs more quickly - the more ways bugs appear that we experience, the more heuristics we have to find them, and the better we are at our jobs as testers. A wonderful side effect of these heuristics is we gain more empathy for people with backgrounds different from ours, as we see more of the world and what people experience on a daily basis. While we absolutely need more diversity in tech, unless people see themselves represented or supported in the software they use, they won't feel they belong.

In this talk, I'll share how I've found a great "life hack" to getting more heuristics with social media, and how these heuristics have helped me in my testing. We'll cover some common themes I've found where our users may struggle with our applications, and I'll share tips to expand your social media consumption to include more diverse backgrounds so you, too, can socialize for heuristics.

## **General Session Day 1 4:45 PM**

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### **Code Review is an Architectural Necessity**

*Colin Dean*

Code Review is not a new concept, but a specific term for an older concept -- Peer Review -- that focuses the review process on the code under examination instead of the person who submitted it. While Code Review is common in open source projects, organizations developing in private often employ inefficient, frustrating, or virtually non-existent review processes. This talk looks at Code

Review from an architect's viewpoint, arguing that Code Review is an essential component in a product's architectural plan because of the quality attributes it may provide. It also covers tips and sets expectations for what Code Review can and cannot solve.

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## **Signals, Signals, Everywhere: Tracking Aircraft with Redis & Software-Defined Radio**

*Guy Royse*

Aircraft are everywhere. Knowing exactly where is paramount as it's considered bad form for two aircraft to be in the same place at the same time. To avoid this, aircraft worldwide constantly and publicly broadcast their location, heading, and all sorts of other data using a system called ADS-B or Automatic Dependent Surveillance Broadcast.

This data is a natural fit for a streaming architecture. After all, it's a constant stream of data that is literally being broadcast in real-time. But how can we capture these broadcasts and the data within? Surely it must require expensive hardware and special tools!

Not so much. It turns out that we can capture ADS-B data easily using a combination of a cheap radio dongle and free software—a combination called software-defined radio. From there we can store it in a streaming data structure and consume, transform, and publish it using microservices. Cool, right?

In this session, you'll learn how software-defined radio works (and not just for ADS-B), how to receive and store ADS-B data in streams, and how to use those streams with microservices. And, I'll do it all by example—building a dashboard showing real-time flight data using Node.js, Redis Streams, and whatever front-end JavaScript framework happens to be popular that day!

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## **Home Lab - Private Cloud on a budget**

*Jared Rhodes*

Really like computers? Use homelabs to experiment in. It's a sandbox environment where if you break it, you fix it, and more importantly it isn't costing money while it's down.

In this talk, we will discuss how to cheaply and easily:

- \* Acquire Cheap Hardware
  - \* Utilize Free Software
  - \* Use a Homelab
- 

## **GDPRs, and PCI-DSSs, and HIPAAs, oh my: Untangling Compliance So You Don't Get Scared**

*Jennie Ocken*

All software will fall under some compliance standard from HIPAA for health care information to PCI for credit card information, from GDPR for privacy in some countries and states to SOX for publicly traded companies. As software developers, product managers, and quality engineers we have an outsized influence on the ability of a company to maintain compliance and meet standards.



However, compliance standards can be confusing, contradictory, and scary. Every day we are making decisions from data storage to data security, from form validation to walking away from an unlocked computer that impacts the compliance of our software and our company. When should we talk to a compliance officer? What are the right standards of data security vs user control that we should maintain? How do I even know if any of these standards apply? Join this talk to learn the basics of compliance.

Key takeaways of this session are:

- \* High level understanding of the most common compliance standards
- \* What responsibilities you have as an employee and as someone building software

What to do when compliance requirements are contradictory

- \* What is involved in various compliance audits and what to do if you think you are out of compliance
- \* When to talk to your compliance officer, HR, or security team and what to do if your organization doesn't have one of those

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## Reduce System Fragility with Terraform

*Scott McAllister*

As infrastructure stacks grow increasingly more complex and involve an ever-growing number of services and systems there are a lot of opportunities for error and misconfiguration. To provide more system stability teams have looked to abstract configuration to its own layer of code. This concept of configuring infrastructure as code is gaining traction throughout the industry for a variety of reasons. It's fast, consistent, reduces errors, self-documentation, and did I mention it's fast? Tools such as Terraform from HashiCorp have emerged as one of the leading ways to declaratively configure technology stacks.

In this talk you'll gain an understanding of the benefits of Infrastructure as Code in general, and of using Terraform specifically. You'll be introduced to how Terraform works, what the code looks like, and how to get started.

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## Lessons Learnt from 10 years of Developer Advocacy

*Sam Basu*

Technical developer advocacy is no longer a role that you have to explain – it is critical to the success of most software product companies. And the craft has evolved over the past few years – come learn the many nuances to be successful. Take away well-accepted tricks of the trade applicable to most audiences – with real world developer advocacy examples and resources. How do you tell stories & weave your products in? How do you stay humble while making a name for yourself? How do you create a niche, write well, speak well and move the needle? How do you scale? How do you create value? And how do you inspire? Come be awesome!

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## What you need to know about SBOM

*Charles Yost*

SBOM (or Software Bill of Materials) might be a familiar acronym, or it might not be one you have heard of before. Either way, this session will have something for you. It will include background on what an SBOM is, why they matter, how to generate one, and how to leverage them for continuous risk assessment, future dependency selection, and vulnerability response. After attending you will be armed with the tools to answer questions like: are we vulnerable to the hottest CVE this week? Or:

how should we allocate our security-related maintenance resources? And finally: are we making a good choice to include that fancy new OSS gadget in our product? So let's dive deep and understand together the relevance and practical application of Software Bill of Materials.

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## **The Engineer's Playbook: Starting a New Role**

*Cameron Presley*

Starting a new role is never easy. There are a ton of ideas, new processes, people, and new technology to pick up. In addition, one may have also changed problem domains, which means learning about the problems being solved. That's a lot to take in and is colloquially known as "drinking from the firehose", That being said, how can the flow be controlled? Can the learning be optimized such that one could be effective in the short term and not need six months of ramp-up time?

In this session, attendees will be exploring a playbook that walks through the four pillars of knowledge (product, people, processes, and technology) and how they relate to each other. During this exploration, each pillar will be broken down into concrete questions and tasks that one can take on when starting a role, culminating in a plan of attack for the first week, first sprint, first month, and first quarter.

Intended for engineers of all experience levels, attendees will have an example playbook that they can use when starting a new role. Managers and leaders will have new insights and perspectives on how to overhaul their own onboarding processes.

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## **Deceptive Patterns & FAST**

*Todd Libby*

Deceptive patterns (also widely known as "dark patterns") are all over the Web. I'll speak to the accessibility impact deceptive patterns and "dark" patterns have as well as my introduction to taking these patterns and my work in the W3C to have these published in WCAG 3.

There is a lot of work being done in the Functional Needs group of the W3C to introduce these to FAST. I'll talk about FAST, what it means to accessibility, and to users, developers, designers, and everyone in-between in the organization.

I'll also introduce people to the Framework for Accessible Specification of Technologies (FAST) which advises creators of technical specifications on ensuring their technology meets the needs of users with disabilities. It primarily addresses web content technologies but also relates to any technology that affects web content sent to users, including client-side APIs, transmission protocols, and interchange formats. Specifications that implement these guidelines make it possible for content authors and user agents to render the content in an accessible manner to people with a wide range of abilities.

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## **They promised us Jetpacks**

*Godfrey Nolan*

Over the past few years the number of new Android Jetpacks has exploded. For many developers who may not have been paying attention the modern Android platform has become unrecognizable. In this session we look at what it takes to add as many different Jetpacks as we can to a simple public

transit app. Using this example we aim to help developers quickly get up to speed and increase their MAD skills. We'll also explain the reasons why each Jetpack makes your life easier and your end users happier.

## General Session Day 2 8:30 AM

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### Application Architecture Patterns

*Joseph Guadagno*

Architecting an application can be challenging. What do you do to keep your application flexible to ever-constant requirement changes? How do you handle landscape changes (cloud, on-premises, databases)? How do you avoid over-engineering the application? How do I make sure my application plays well with other applications?

In this session, we'll take a look at some well-understood and practiced Software Architecture patterns. We'll cover these patterns at a high level to understand how to use these patterns in different scenarios.

You'll walk away with some knowledge, tips, and tricks that you'll be able to use for new and existing applications.

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### 60% of the Time, Estimates Are Right Every Time

*Brett Whittington*

Historically developers hate giving estimates because they are mostly wrong and are often held to them by the business. The business needs estimates because ultimately all projects cost money. What happens when the estimator leaves or the estimation is from months prior? How do we get developers and business to both get what they want?

Learn how to love the estimation process. This talk goes over doing estimation best practices. Learn how to transfer the estimation knowledge from estimator to the rest of the team. Keep business to scope and understanding change process.

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### Lights! Camera! GitHub Actions!

*Mark Ramsey*

GitHub Actions has grabbed the attention and mindshare of both the open source and enterprise development communities. It combines the power of GitHub source control with automation scripting capabilities to give us the ability to execute both Continuous Integration and Continuous Deployment tasks that live with our code. Through a series of familiar movie titles, we will explore what makes this tool so powerful, and walk through its components, structure, trigger mechanisms and integration with GitHub. We will build a basic CI workflow with Actions, and discuss the out of the box features that are available today as well as some of the interesting Actions available in the GitHub Marketplace. Finally, we will examine how to build a custom action and publish it for others to use. So dim the lights, pass the popcorn, and start the film - time for some GitHub Actions!

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## **Unit Testing Concepts for Beginners**

*Bob Crowley*

Unit testing gives you confidence in the correctness of the code that you ship and allows you to perform maintenance, add features and do refactoring with lower risk. In order to attain that confidence, you must be adept at building effective tests. Targeting developers that are making the transition from just writing code to taking quality seriously, this presentation will show you what it means to have "covering" tests, the difference between unit tests and integration tests, what dependency injection (DI) is, how DI applies to testing, how to effectively mock dependencies and finally, see an example of automated tests in a build pipeline. Demos will use C# .NET and GitHub Actions but concepts will be explained in a general way. Also, there will be a Chuck Norris meme.

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## **Whose Time is it Anyway? Lightning Fast Hacks That Add Real Value to Meetings No One Wants to Attend**

*Scott Showalter*

Too many meetings. Let's face it, we all have them. Meetings are a necessarily evil, but they don't necessarily have to be so evil. Regardless of whether we're leading a meeting, or merely attending, whether it's in person or remote, the value extracted from collaboration can be amplified by how we conduct our gatherings.

This session reveals 7 simple yet powerful tactics almost no one is using, even in 2022, that will add instant value to nearly any meeting, any time, anywhere. Because time is precious, and it's non-renewable. Expect to walk away from the session feeling empowered and ready to implement these methods in your very next meeting.

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## **What do Graph Tables bring to the table**

*Hasan Savran*

There are many ways to represent data. Most of us stuck with Relational Database Data Models and we don't feel comfortable when data gets represented in different ways.

Graph Processing Tables is yet another way to represent data, it can change the way you look at the data. Relational Databases don't adapt well to changes. Adding a new domain or relation to your data model should not be that difficult. You want to create flexible data models that evolve with your business process.

Join me to learn how to create flexible data models with Graph Database tables.

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## **Aerospace Engineering for Computer Scientists**

*Ilyana Smith*

It IS rocket science! What do the International Space station and Apollo 1 have to do with basic programming principles? What considerations need to be taken into account when computers go to space? How did computers impact the moon landing? (Hint: it wasn't special effects!) In this session, you'll get the answers to all these questions and more! You'll discover the connections between these

two seemingly unrelated fields, and you'll come away with a better understanding of the aerospace field and how its history is intertwined with that of computers. You might even learn something about programming principles along the way!

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## **When is a Regular Expression Better Than Artificial Intelligence?**

*Robert Herbig*

When we need to scale a product, automation is almost always the right answer, and it's easy to reach for Machine Learning (ML) because it's so broadly applicable. However, a general-purpose tool like ML often underperforms when compared to more specialized tools. This talk is a case study about a product team that was scaling their product (scoring assignments against a rubric) with ML and not seeing the results they expected. In this talk we will discuss why and the special-purpose techniques we used in place of ML.

By the end of the talk, the audience will have been introduced to two models for ML-based natural language and code understanding. We will establish some heuristics for deciding when ML is necessary or when a more specialized technique is likely be more desirable. These discussions don't require a fluency in ML or NLP or any of the other technologies we used. The important part is a desire to find the right technology for a given problem, independent of your title: tech lead, developer, product owner, etc.

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## **The Rise and Benefits of Robotic Process Automation**

*Thomas Haver*

Robotic Process Automation (RPA) is a term given to technology that allows developers to programmatically emulate the actions of a human to execute a business process. RPA often operates on the user interface (UI) layer to capture data or interact with an application or across multiple applications to perform tasks that are considered repetitive or time-consuming. Originally focused on business processes, many RPA solutions now integrate with SDLC tools. While the promises of easy adoption and scaling are made by almost every vendor, the reality is long-term commitment to an RPA program is the same as any new application. In this presentation, the audience will learn about the benefits of RPA, multiple RPA use cases, and how RPA can be assimilated into a enterprise.

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## **Strongly-typed CSS with Vanilla-extract**

*Georgia Loper*

Sick of memorizing awkward naming conventions? Are you losing sleep thinking about how to author maintainable CSS at scale? CSS-in-JS frameworks not performant enough? Tired of banging your head against a wall, trying to figure out why your CSS isn't working, only to realize you spelled the class wrong? Look no further than Vanilla-extract + Sprinkles.

In this session, you'll learn how to write type-safe, locally scoped classes, variables, and themes to generate static CSS files at build time.

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## **I Ain't Afraid of No Ghosts Products: Using a user centered approach to bring products back to life**

*Rachel Gregory*

Every year companies waste billions of dollars building software that sits on the proverbial shelf collecting dust or is simply left to die due to a poor user experience and lack of adoption. According to a new study conducted by software lifecycle information firm, 1E, more than \$30 billion is wasted annually on unused software in the U.S. alone.

So, how can you help bring digital products back to life and become something users enjoy interacting with? In this hands-on workshop, we'll cover the concept of ghost products, how you can identify them, steps you can take to improve them to aid in adoption, and how to mitigate any future products you work on coming back to haunt you.

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## **Alexa on the Go: Building Location Aware Voice Experiences for Alexa**

*Craig Walls*

When you think of voice assistants like Amazon Alexa, you probably are thinking of a device on a shelf or a desk somewhere, tethered to a power outlet. But what if you could take Alexa with you wherever you go?

Several devices allow for mobile Alexa, including Echo Auto, Echo Frames, Echo Buds, Fossil Gen 6 watches, and the TalkSocket. You can even take Alexa with you on your phone using the Alexa app or on your Apple Watch using the Voice in a Can app. Being able to take Alexa with you opens a whole new world of possibilities, enabling voice application developers to create voice experiences that help users no matter where they are.

In this session, we'll see how to create Alexa applications (called "skills") that can take advantage of Alexa while on-the-go. You'll learn how to gain permission to access the user's location and provide information relevant to that location. We'll also have a look at a real-world Alexa Skill that uses location awareness to enhance a visit to Disneyland or Disney World theme parks.

## **General Session Day 2 9:45 AM**

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### **Lessons from Scaling a Reusable Component Library**

*Cory House*

Creating components is easy. Creating reusable component libraries is hard. Over the last few years, I've helped multiple companies build and scale reusable component libraries. Along the way, I've learned by making a variety of mistakes. In this session, I'll share mistakes you can avoid to help assure your company's component library is usable, scalable, flexible, and shippable.

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### **How to work with Security and have it not suck**

*Jamie Dicken*

Let's face it: working with security teams can suck. Whether they're trying to prioritize security work in the backlog, raising a show-stopping security concern hours before go-live, jamming more steps into the SDLC or tools into the pipeline, or blocking use of third-party libraries, there are plenty of opportunities for conflict to arise. Unfortunately, this bad blood between developers and security teams is pervasive across the tech industry, ultimately weakening the products we build.

The good news is that it doesn't have to be this way. Come learn from Jamie Dicken, a former software developer and now security leader, who has been on both sides of this oft tense relationship.

In this talk, they will shed light on why security teams act the way they do, provide you with strategies to navigate conversations with your security team, and help you propose alternative ways to embed security within your existing software development processes. After all, we all want the same thing: a kickass product that stands the test of time – and the attackers who want to bring it down.

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## **Verbs, Not Nouns: Writing Documentation Users Want to Read**

*Brian MacDonald*

Documentation should be complete and comprehensive, but that doesn't mean it has to be dull and boring. Engaging documentation focuses on what your users want to do, the tasks they're trying to accomplish, the problems they want to solve. Writing documentation with the focus on your user, instead of the product, results in a better experience for the user and a better reputation for your product.

Finding the right balance isn't always easy, though. In this session, you'll discover the right verbs that fit the use cases for your product. That means learning more about your users and what they want, which may be more than one group of people. You'll turn those use cases into effective tutorials that cover the right amount of information. And you'll learn when reference-style documentation is needed, and how to make that more efficient too.

Attendees will learn:

- \* How to shift the focus from what the product is to what the reader wants to do.
  - \* Discovering the verbs that relate to your product.
  - \* How to create tutorial scenarios for your use cases.
  - \* How to write effective documentation for users with different experience levels.
  - \* When reference-style documentation is appropriate.
- 

## **Launch Your API Testing Out Of This Galaxy With Postman**

*Rick Clymer*

Looking to enhance your API test coverage with a single solution across all of your services? Maybe you want to make sure that your services are integrated properly and working with each other in your deployment pipeline. Or maybe you're looking to have your manual testers begin to write automation. All of these can be accomplished using a single solution, Postman.

In this talk, we will discuss how we can use Postman to create a collection to test all aspects of your API's. We will start by getting familiar with creating a collection that you can use over and over for your testing. Once we have our collection established, we will look at how we can write tests to make sure we are getting proper responses, timely responses and how to confirm our responses that are returned from our API. We'll review how we can use the same collection across multiple collections to not have to duplicate our efforts. Finally, we'll look at how we can use Newman to add our Postman collection to our CI/CD pipelines.

By the end of this talk, you will have the knowledge of how to create a collection that you can add to your deployments to build your confidence in your services in a quick and easy fashion. Using the testing methods discussed in this talk will allow you to move your testing further away from a manual state and build more confidence in your API layers.

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# The One SQL Performance Tuning Tool You Need to Know

*Erin Stellato*

Whether you run SQL Server in house, in the cloud on a VM, or use Azure SQL Database, Query Store is a tool you can leverage for troubleshooting and monitoring, as well as stabilizing query performance. This session will show you why Query Store is essential, whether you have prior experience with query tuning or not. We'll step through a series of demos based on problems encountered in production environments over the last six years to provide an understanding of what this feature has to offer and why you'll want to enable it, immediately.

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## Vertical Slice Architecture, not Layers!

*Derek Comartin*

Nobody wants to deal with a system that is hard to change and easy to introduce bugs because it's a spaghetti code mess of various technical concerns.

Clean Architecture is popular because it separates concerns into many different layers. But why are we organizing code by layers? Does adding a new feature require you to modify files across multiple projects in your UI, business, and data access layers?

Join Derek as he explains Vertical Slice Architecture and how to organize code and focus on features instead of technical layers will make your system easier to change.

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## Introduction to Accessibility

*Erissa Duvall*

Sometimes Accessibility can be tough to wrap your head around, but it is becoming clearer every day just how important it is and how much it can benefit everyone. In this session, we will explore some basics of Accessibility, information resources, and tools that can help you be an Accessibility ally. This should be helpful for anyone regardless of whether you work in UX Design, Development, or even just have a colleague with Accessibility needs.

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## Market Rate -- Is it just for seafood?

*Yvette Menase*

You might have have googled "market rate for x job" during your application process. You probably have received a ~1% raise with the HR justification of, "It's market rate". You most likely applied to a job that gave a range, paid you the minimum, and denied your negotiation as "It's market rate for the area."

Some career activists advise against negotiating based off market rate, but that phrase and practice isn't going anywhere, so let's go over how to find accurate data for your job title. Hint: it's not only a quick google search.

I was mid-career by the time I mustered the courage (or frustration at my current pay) to negotiate -- starting earlier could have only benefitted myself and my peers. As a tech employee by day, and a career coach & salary negotiation expert by night, I'll teach you how to

\* answer the tough salary questions



- \* when and how to negotiate
- \* what's "reasonable" to ask for and how to determine it
- \* navigate the curveballs of the negotiation process
- \* be comfortable talking about salary with friends or co-workers, where it's legal

I'll provide data including examples from a compensation survey I work on, my experience & case studies of helping others land jobs, & ROAM the risks of negotiation when you might be at a disadvantage.

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## **Want to advance in your career? Learn to get great feedback!**

*Steven Banks*

Have you ever felt like you are stagnant in your career, unable to advance, and even unsure of how to do so? Have you ever felt like your one-on-ones are pointless, and mundane, and do not accomplish anything? Or how about performance reviews, do they feel like a waste of time?

All of us desire to make progress in our careers. And every one of us at some point has probably felt like we were not growing or did not know how to take the next step. I believe the key to all of this is knowing how to get good, actionable feedback from the person who makes the decision on whether you will advance or not - your direct manager.

In this session, you will learn how to do just that. I will give you the questions you need to ask and the follow-up you need to perform in order to know where the gaps are in your skillset and why you haven't gotten that promotion yet. It will help you get beyond surface-level feedback and statements such as "just keep doing what you're doing". If you follow this guide you will be well on your way to knowing what steps to take to advance to the next level in your career.

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## **Gender Diversity Is Not Enough**

*Cassandra Faris*

Studies consistently show that diverse teams solve problems more effectively, yet software development teams frequently lack diversity. Thankfully, the tech industry is talking more about DEI (diversity, equity, and inclusion), understanding why these things are important, and making changes to include more people. These conversations often focus purely on gender when there is so much more that makes teams diverse. Let's expand the DEI conversation beyond gender to include things like race, disability status, age, educational experiences, and cultural background. This interactive session will discuss different types of diversity and why they matter. It will dive into the aforementioned studies before focusing on real world examples of how to be more inclusive and equitable. Attendees can participate in this guided discussion and share their own experiences and challenges with fostering and increasing DEI in the tech industry. You'll leave with a broadened perspective on DEI and new ways to foster these traits within your organization.

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## **Seeding the Model: Getting started with ML Kit**

*Sierra OBryan*

ML Kit brings Google's machine learning expertise to mobile developers (both Android and iOS). The powerful library includes both Vision APIs for image labeling and detection and Natural Language APIs to identify and translate between languages to help developers build engaging and personalized

apps.

In this talk, we'll start from the basics and build a native Android app to identify plants using ML Kit. We'll walk through integrating and using the default Image Labeling Vision API in our app, then dive in and train our own custom model, and finally process real time camera input.

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## **npm install empathy --an emotional intelligence toolkit**

*Tiffani Frost*

Ready to upgrade your packages? Need some time to do some introspective thought provoking work? Then this session is for you! npm install empathy is a high level innovative way to look at yourself and how you work with people. We spend so much time on the cutting edge of technology. What about the cutting edge of emotional intelligence? Have a pesky teammate that you just can't seem to collaborate successfully with, or just wanting to take a deep dive into yourself as you have evolved in your career? Using this toolkit will empower you to evolve those relationships!

## **General Session Day 2 11:00 AM**

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### **A React Crash Course for Backend Dinosaurs**

*Brandon Bruno*

I've been developing backend .NET MVC web solutions for 15 years, but thanks to the demands of highly-dynamic, component-driven front-end solutions, I've become a bit of a developer dinosaur. Join me, fellow dinosaurs, as we modernize our skills to ensure we are ready for the modern web.

This session acts as a (very) quick introduction to the React library from the viewpoint of a horribly-outdated backend developer. You will come away with a basic understanding of introductory React concepts such as props vs. state, function/class components, JSX syntax, hooks, lifecycle methods, and much more. If you've been ignoring libraries like React, now is a great time to dip your toes into modern component-based development.

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### **UI Component Tests and QA Strategy**

*Mark Noonan*

Writing UI component tests that run in your browser right alongside the development environment is a powerful workflow for test-driven development on the front end. In this talk, we will discuss how Component Testing in Cypress lets developers take a component-first, test-driven approach to developing components. This approach can streamline our end-to-end tests by shifting coverage of certain details (like accessibility and correctness of the DOM) to the left of the development process.

The talk will cover some "dos" and "don'ts" for component tests, and compare component testing to end-to-end testing, then talk about how both work together as part of an effective testing strategy for web applications, and some new opportunities for code sharing between testing types that might be worth exploring.

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### **Demystifying Data Science**

*Grishma Jena*

Today's world generates different kinds of data at unbelievably rapid rates. One often hears that Data Science is changing the world - but what does it mean? Why use it? What questions can it answer? How can it help in developing business software?

This talk introduces Data Science and explains the Data Science pipeline and algorithms using real-life examples. It is aimed at budding data scientists and anyone curious about interpreting data.

By the end of this session, audience members will have a better grasp of the capabilities and processes of Data Science. They will be familiar with the general structure of a Data Science pipeline, and will develop a strong foundation to continue learning and experimenting in Data Science.

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## **The Price of Open-Source**

*Matthias Koch*

Open-source is everywhere and companies save billions of dollars because of it. Making your project popular and still keeping a clear head takes a lot of effort. From my 7-year journey in the community I learned from many mistakes and lived the versatile life of a maintainer. Open-source is a great opportunity for everyone to become a better developer and possibly even to create a sustainable business.

Audiences from different backgrounds will learn how to get the most out of open-source. No matter if you are a long-standing maintainer, enthusiast with an idea for the next big thing, an occasional contributor, or a regular open-source package consumer.

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## **The Care and Feeding of Bootcamp Graduates**

*Tori Brenneison*

So... you just hired a bootcamp graduate. Now what?!

They're not your typical entry-level candidate. They might need slightly more mentorship on the technical side, and slightly less on the business side. Perhaps they're overwhelmed by the size of the company codebase, or perplexed by some of the new software and services they need to learn. They may not know how to manage expense accounts, paid time off, retirement plans or health insurance--or even that those benefits are available.

But... many of them have had jobs before. They come with plenty of valuable experience from other fields. They're motivated! Teachable! Destined for success... with your help. In this session, we'll discuss some of the hurdles bootcamp grads face entering the field, and how to help them navigate their new normal. We'll talk about inclusivity in recruiting, empathy in onboarding, and the unique mentorship needs of career changers.

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## **Event Streaming and the Kafka Conundrum**

*Barry Tarlton*

As data increasingly becomes the backbone of business, having a resilient distributed data store becomes a necessity. Over the past few years, Apache's Kafka has risen to the top as the most used

real-time and scalable messaging system in most businesses. When our company began its journey into Event Streaming with Kafka a few years ago, I was amazed at the simplicity of the API's and how quickly I could develop simple applications for producing and consuming data. But as our company began investing more into Event Streaming and Event Driven architectures, the need to go beyond the basics quickly became paramount. Once our apps were deployed into the real world with both good and bad data, head-scratching issues began to arise due to our lack of understanding of Kafka's message management. I quickly became inundated with questions from app teams I supported like: "How can I retry a message that fails to process?" "How do I guarantee I process messages in the correct order?" "What can I do to speed up data processing?" or my favorite... "I'm stuck on a bad message, what do I do!?"

In this session, not only will these questions be answered, but we'll share the tools and techniques, used to put the power of understanding in the hands of the developer so you can have a clear picture into your event streaming applications.

This session will use live demos to go beyond the basics to teach the skills and tools you can use locally to help build robust consumers and producers before you deploy.

Using Spring and Kafka libraries, this session will highlight various settings on consumers and providers to optimize the way our data is streamed and read. Using a local Kafka cluster running in a container, we will demonstrate how to see how your code changes impact your committed offsets. Come and learn how to pull back the curtain on Kafka and gain the critical knowledge to master your own Event Streaming systems.

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## **Hidden Hacks in Linters for Better & More Secure Code**

*Gabriel L. Manor*

Linters are a great tool that enable developers to create static analysis rules for their code base, and the most popular one in the Python ecosystem is Pylint. While most programmers use pre-built sets of rules baked into their linter of choice, these can also be adapted to custom needs.

Today's linters are highly evolved and make it possible to avoid static code and even to run static analysis checks through the development and CI cycles, but they are even more powerful and few developers take advantage of their many advanced features. With Pylint it is quite easy to create custom rules that can for both general usage—such as library guidelines and even security SAST, through more customized usage like maintaining clarity around internal frameworks, and enforcing organizational guidelines.

Often times Python is chosen as the language of choice due to its suitability for specific tasks such data pipelines, and system engineering, while those who code in the language are not always familiar with the language's underlying fundamentals and patterns. With custom lint rules, you can proactively help your developers write better code in their native IDEs, protect IaC repos through custom lint enforcement on config files, and even have security tools leverage them for manual vulnerability checks. This talk will demonstrate how you can apply all of this to your Python code with Pylint.

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## **Fighting The Saboteur in Your Relationships: Dealing with Cognitive Biases**

*Arthur Doler*

Modern software requires the efforts of a coordinated, dedicated team of individuals. We need to work with other people, and in order to do that, we have to maintain relationships with them. But no matter how polite, conscientious, or amiable you are, there's still something that's always working against you - your own brain, and its host of cognitive biases. For the last several years, books and podcasts and presentations have warned of the danger of cognitive biases, but we just haven't had the ammunition to fight against them effectively... until now.

A new wave of cutting-edge psychological research is showing us how to fight back against our cognitive biases, and you can make use of it! You'll learn how to diminish attribution errors, how to grapple with tribalism, and how to jump the empathy gap. Find out how to knock illusory superiority down to size, and how to extinguish the halo effect. And the best part is that the only piece of hardware you'll need to do it is the thing you already have between your ears - your own brain.

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## **Getting the Most out of Sysmon**

*Amanda Berlin*

The default logging capabilities from Microsoft are only helpful to a certain extent. This session will discuss how to utilize the Sysinternals tool Sysmon for threat hunting, testing detections and more. The session will explain use cases and look at real examples of Sysmon successfully detecting malicious behavior in the wild.

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## **Self-Driving Robotic Cars - Starting on a budget**

*Don Ward*

A few years ago Waymo learned that soap bubbles cause their self-driving cars to hesitate on whether to brake or not. Today the promise of self-driving cars is still only a promise. The industry continues to move forward and advances are made every day. Soap bubbles no longer cause havoc. The good news - getting started and learning about the software and mechanics of self-driving cars is easier than ever.

Join this session to learn how you can build your own self-driving robotic car using the NVIDIA Nano Jetbot and JetRacer platforms. We will discuss how to put together the hardware, software, and ML algorithms to build your own robotic car that knows what to do when it encounters soap bubbles.

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## **The Spiders Agree: Knative Makes It Way Easier to Deploy Your App to Kubernetes**

*Whitney Lee*

Although Knative has been community-maintained since 2018, there has been buzz around the project lately because Knative has recently been accepted into the Cloud Native Computing Foundation (CNCF) as an incubating project.

Cool! But what is Knative, exactly?

Simply put, Knative is a technology that streamlines and enhances the way that applications run on Kubernetes. Even simpler, still: Knative makes it easier to deploy your applications on Kubernetes. Like, way easier. And Knative adds additional capabilities too, such as scale-to-zero and traffic

splitting.

This talk is for people who are excited about this value proposition and want to dig deeper. How does it work? What components are at play? In what other ways is running an app on Knative superior to running it directly on Kubernetes?

Instead of presenting slides, the speaker will draw and diagram the fundamental concepts of Knative, explaining the components in simple, relatable terms. Alongside her drawings, she will drive deeper understanding with a live coding demo that gives context to the main points. She will illustrate how Knative works with a real-life, straightforward, run-of-the-mill use case: using spiders and rainbows.

Attend this lighthearted, friendly talk to gain a high-level understanding of Knative Serving and its main components, to learn how Knative simplifies and improves the way that apps run on Kubernetes, and to have some fun!

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## **Weathering Storms in the Cloud**

*Denis Magda*

Cloud availability zones and regions are not immune to outages. The zones go down regularly, and regions become unavailable during natural disasters or human-caused incidents. Thus, if an availability zone or a larger area goes down, so does your application...unless the application functions across multiple geographic locations.

In this talk, we'll review the latest availability and reliability patterns used by architects whose applications withstood major cloud outages. We'll begin with a resilient data layer that tolerates region-level outages and go all the way up to global cloud load balancers that direct user traffic to the healthy instances of an app.

## **General Session Day 2 12:15 PM**

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### **Don't let user authentication stop you from building your web app!**

*Kyle Whitaker*

Authentication is no trivial task; it is also an essential building block for most web applications. Building a robust user authentication flow for the first time can stop even a great developer dead in their tracks. Authentication can drown you in a sea of architectural complexity, and all you want to do is build a simple, secure sign-in page for your users! If you want to conquer your anxiety of building a user authentication flow, then this session is for you.

We'll get our feet wet with some code samples implementing basic authentication flows using two different options: Passport.js and AWS Cognito. We'll also discuss what it takes to implement one-time passwords (OTP), multi-factor authentication (MFA), and social login with providers such as Google and Facebook. Finally, we'll make sure all of this can be supported with E2E test automation. You will leave this session with the confidence and tools to construct a simple yet robust user authentication flow in any web application.

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### **Roll your own home security with .Net Core, Raspberry PI, Azure and a lot of**

## wiring

*Heath Murphy*

I'll walk you through step by step of how I turned my software skills into a working full featured home security system. We'll run .Net Core on a Raspberry PI and wire it up to nearly 24 different door/window sensors and hardware. I'll show you why SignalR is so powerful and throw in splashes of Vue.js, all running on Ubuntu and Raspbian. The entire system is monitored by a PWA served up on Azure. It was an amazing adventure and I still live with the end result today to monitor my home. Want a side project? Come learn how rewarding this can be.

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## Why We're Always Late

*Jeremy Jarrell*

Your software project is probably late. And your last project was probably late, too. Furthermore, despite the decades of experience that we have planning and forecasting projects, this doesn't seem to be getting any better.

It seems like we should be improving. The last few years have seen new and novel approaches to estimation, ways to de-risk project schedules through more frequent releases, and expectations placed on teams to work longer hours to close the gap. Yet, schedules continue to slip.

This is because all of the new and innovative approaches to estimation ignore fundamental problems in the software forecasting process. But, there are known solutions to those problems that any team can implement to get their projects back on track.

In this session, you'll learn why classic approaches to software estimation do not work and what we should do differently to improve our track record as an industry. You'll learn specific forecasting techniques that you can implement immediately to improve your ability to predict when your project will be done, and you'll learn how to overcome resistance to this new approach to forecasting in your own organization.

By the end of this session, you'll have the tools necessary to ensure that your next project is delivered just when you expect it to be.

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## Consuming Endangered Pachyderms: A Product Approach to Tech Debt

*Jennie Ocken*

You are buried under a mountain of debt. You are anxious and feel like you are being set up for failure but you can't pinpoint why. It's preventing you from building your dreams. It's making stakeholders unhappy. Every feature is a nightmare to build and you doubt yourself as a product owner. The development team is about to stage an armed revolt. Your software is rotting under you and it's going to cause a premature death for your product. How did things get this bad and what should we do about it? Or, even better, how do we prevent it from ever getting this bad in the first place? How do we start eating that tech debt elephant?

Whether you are a product owner or a developer, understanding how tech debt is holding back your business objectives will help you start digging out and creating a better product for everyone. This session will help you articulate what debt you have, formulate a plan for addressing it, and communicate that in business friendly terms. All systems have tech debt. Not all tech debt is made

equal and not all of it can, or should, be addressed. It's time we start talking honestly about what debt is, how it affects the product, and what to do about it.

Key takeaways:

- Evaluate how tech and product debt are impeding your vision and business objectives
- Learn tools to build your own debt backlog, prioritize debt against features, and socialize debt solutions
- Discover simple ways to communicate effectively about tech debt within your organization

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## Testing in Prod as Part of the Pyramid

*Cecelia Martinez*

The paradigm of the testing pyramid has changed over time, with developers adjusting the types of testing performed during integration. Unit, end-to-end, and even component and API testing are taken into consideration when designing a testing strategy. With improvements to observability and deployment tooling, can testing in production be a valid aspect of your quality strategy? This session evaluates the current testing ecosystem for pre- and post-deployment, including how to leverage deployment strategies to evaluate the quality of your codebase across the entire software development lifecycle — yes, even production.

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## 10 THINGS DEVOPS IS; 10 THINGS DEVOPS ISN'T

*Matt Williams*

DevOps has grown in visibility and popularity over the past decade. It comes in many flavors – DevOps, SRE, DevSecOps, DevKitchenSinkOps, and more! While DevOps is many things, there are also many things which it is not. This talk introduces DevOps, what it is, and, perhaps more importantly, what it isn't.

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## Build and Ship It!

*Joseph Guadagno*

If you are like me, you have many libraries, helpers, utilities that you have built over time that you use for multiple projects. You've thought about publishing them to NuGet so you can share them with other projects or your team but didn't because they contain secrets, intellectual property, or aren't well documented. With Azure DevOps, you can set up an Azure DevOps Artifact repository, private to you or your team, to securely store your packages and make them available to other projects and teams.

In this talk, we'll take a small .NET library, and it doesn't just work with .NET, and build an Azure DevOps Pipeline to publish it in our Artifact directory. With this pipeline, we will build the library, execute unit tests, sign the code using a Code Signing certificate, and deploy it to our Artifact repository.

And at the end of the talk, you'll have a pipeline that you can add to the library, utility, and helper packages with some minor tweaks, when you are ready, to NuGet.

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## Counting Cars with Drones

*Godfrey Nolan*

In this session we walk through the process of creating an app to count cars in a parking lot. We need to record video, label the images, train the machine learning model, export the TensorFlowLite file and get our Android app to count cars in a parking lot in real time using a DJI mini drone.

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## Why Can't the Business Get Behind Streaming?!

*Becky Gandillon*

Technologists understand that Kafka is reliable and durable; fast and fault-tolerant. It handles use cases both large and small. So why isn't it being used everywhere by everyone? Because the technology itself isn't the answer. As an engineer-turned-data-guru, it took me way too long to figure that out. No technology will make a difference in any business without the proper buy-in from stakeholders (including non-technical stakeholders), enablement support, and carefully crafted adoption frameworks. During this session, you'll learn about how to communicate the value of technology decisions to non-technical co-workers or stakeholders. And we'll talk about some very specific buy-in, enablement, and adoption activities and suggestions for supporting streaming implementations.

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## Making Angular Apps A11y Friendly

*Wade Harkins*

Following accessibility best practices is important for ensuring that your application is usable by everyone, but deciding where to start can be hard! This talk covers the basics of building accessible web applications in Angular. Topics include the advantages of using semantic HTML, leveraging native functionality when building Angular components, and an introduction to features Angular and the Material CDK provide to aid in the pursuit of an accessible application. Attendees will also be introduced to a collection of ESLint rules for automating accessibility best practice checks to help team-wide adoption.

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## General Session Day 2 2:45 PM

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### Improving the Design of Existing Software

*Steve Smith*

Over time, software rots. If we're not diligent, our beautiful code can degrade into a worthless mess. Keeping our code in working condition is no different than changing the oil in our car – it's preventive maintenance. In this session, Steve will look at some common places to look for signs of degradation in existing applications, and steps to take to improve the code. Examples will use C#/.NET but are generally applicable regardless of platform.

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### Burnout - More than just a bad day

*Seth Petry-Johnson*

Burnout is more than just being tired, irritable, or beat down. It's a specific psychological condition that

develops in response to different types of stress, and it can be measured and analyzed in systematic ways.

This session will introduce a tool for measuring burnout (called the Maslach Burnout Inventory) and explore the science behind it. We'll cover the different ways that burnout manifests in teams, how to use the MBI to evaluate your team, and strategies for addressing burnout BEFORE it leads to turnover, low morale, and a loss of productivity.

Although primarily intended for team leaders, this session is suitable for anyone that wants a deeper understanding of why we get burnt out and how it affects us.

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## **Building Beautiful CLI's is for Everyone**

*Keith Kurak*

Writing command-line interfaces, whether it's to string together a few oft-forgotten terminal commands or batch automate repetitive tasks, are one of those things most developers eventually do, but often only do just "good enough." Let's shift the focus from clean and beautiful application code to CLI's! What makes a reliable, user-friendly CLI? When should we use flags vs config files vs interactive wizards? Speaking of wizards, how do we put pretty spinners and menus in a CLI? How do we test it? Let's spend some time obsessing over these oft-neglected scripts!

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## **Sustainable Accessibility: Integrating accessibility checks into your CI/CD pipeline**

*Ashley Stove*

Accessibility is important, not only for your users but also to meet legal requirements for certain levels of compliance. Unfortunately, most companies lack developers and quality assurance analysts who are trained to produce and test accessible user interfaces to industry-standard levels. Furthermore, dev and qa testing for ADA compliance takes time, and can often be forgotten or de-prioritized by companies that have limited resources. In this talk I will discuss:

1. Why accessibility is important
  2. The accessibility standards put forth by the ADA in WCAG 2.1
  3. How we have leveraged automated accessibility testing tools into our CI/CD pipeline
  4. The impact this integration has had on our ability to maintain website accessibility across multiple projects, even when developers have little to no accessibility training going in.
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## **Breaking Down Monoliths using GraphQL**

*David Lucas*

Monoliths come in multiple shapes and sizes, but how can you leverage GraphQL to break them into components ?

Join this session if you want to learn about GraphQL and how you can leverage its federation of services to break out components and where they live. We will go over how to route GraphQL to REST API calls, how to implement a Backend For Frontends (BFF) facade, and how to move off a monolith incrementally. We will also discuss GraphQL versioning, domain models, and implementation strategies to take advantage of its strengths and avoid its pitfalls. The attendee should leave this session understanding how one might leverage GraphQL and if the technology

might be a fit for their next adventure.

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## **The Unwritten Rules for Documenting, Testing, and Developing Components with Storybook**

*Georgia Loper*

Storybook is a powerful, open source, tool for building, testing, and documenting UI components and pages in isolation. Though, with great power comes great responsibility. Storybook offers plenty of learning resources, but most are for beginners. Few of them consider a real team's requirements and the tradeoffs therein.

In this session, we'll investigate battle-tested Storybooks and source code from some of the largest UI teams, and draw conclusions around best practices for organizing and authoring stories. You'll leave this session with a collection of references to help you super-charge component driven UI development at your organization with Storybook.

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## **GraphQL Distilled**

*Kito Mann*

REST is all about endpoints that perform specific queries or operations. This works fine, but the client is limited by which queries have been exposed. What if the backend exposed the data, but the client could decide which subset of data it needed, and how to interact with that data? That's the promise of GraphQL — simplify the back-end, give the client more power, and make it easier to evolve APIs. When we take this approach, we also have more flexibility on the backend; we can use one or many different microservices together to provide a unified API. In this talk, we'll explain what GraphQL is, how it works, and look at how easy it is to build GraphQL APIs using MicroProfile GraphQL.

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## **Unlocking the Power of Data Observability and Monitoring**

*Roma Nawani*

"When will I receive my data?" "What is causing delays?". If you have been receiving these messages from the business stakeholders, you are not alone.

Many data teams spend over 30% of their time addressing data pipeline issues, troubleshooting problems, missing SLAs, and dealing with incorrect and imprecise data. As we rely more on hybrid infrastructure and systems that become increasingly complex and distributed, this trend is likely to become more pronounced in the future.

As Data Observability gains importance in the data stack, it aids engineers and analysts in minimizing the manual effort required to identify issues caused by incorrect data, code, and operational problems. However, how does the practical implementation of data observability and monitoring appear in reality?

This session will provide an overview of the key components of Data Observability and cover best practices for data teams looking to achieve comprehensive visibility into their data at scale.

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## **More Than That**

*Damian Synadinos*

“What do you do?”

It's a frequent first question asked at parties, networking events, and bad dates. And sadly, the answer often includes the word “just”.

Perhaps a more interesting question is, “Who are you?”. But, how do you answer? Often, our identity is dominated by our professional image. However, even those that “live to work” have other facets which may contain hidden value.

In this session, I'll use humor, improv, personal stories, and more to examine our identities, explore our interests, and find inspiration from unexpected sources. Join me to laugh, learn, and “unjust yourself” as you discover your true potential and rediscover Who You Are!

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## **AI in Lumber Mills: A Case Study**

*Jordan Thayer*

When solving a problem, there are more outcomes to consider than computation resources and solution quality. Sometimes, the right choice of algorithm can hinge on a company's market differentiators. This talk is a case study of an Artificial Intelligence (AI) enabled system we built for optimizing the production of dimensional lumber, like a 2x4.

We'll discuss how our choice of algorithm was heavily influenced by the company's focus on ecological impact, as well as the constraints of their industrial environment. We'll additionally discuss how using AI changed how we estimated the software, built our team, and educated our client, a hardware company, on how software is built.

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## **The Velocity Trap**

*Brad Nelson*

How does your team know that the things they deliver are valuable? While there are some companies that don't measure at all, it is becoming common practice to evaluate a team based off of productivity or output. Just because your team is able to deliver a lot of work in a small amount of time it doesn't mean that output is actually valuable. In other words, what is the outcome of the team's production efforts? In this discussion, we will review the difference between outputs and outcomes, as well as discuss how your organization can become more successful by measuring the things that truly matter.

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## **General Session Day 2 4:00 PM**

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### **Document databases vs. Relational Databases: An honest comparison and things to consider**

*Alex Will*

Many developers still struggle to understand which application scenarios might benefit from utilizing a document database or a relational database. Both of these options are powerful and many vendors have great products ready to build on. Unfortunately not one size fits all and there are definite scenarios where choosing one or the other will give your application architecture a leg up. There are also scenarios where a hybrid of using both a document database and a relational database might be

the best choice.

We will discuss the benefits and tradeoffs of each option, how they differ, and give real-world design tips to consider when building on either. We will also discuss the current options available for database platforms in both the relational and document DB space. Many examples of real code and architectures will be given.

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## **Delighting users with performant apps**

*Mike Hartington*

Ok, so you want to build an app that can be fast, performant, and keep your users coming back for more? Think you need to reach for native? Think again! The Web is an amazing platform that offers developers a lot of ways to build amazing experiences. The only problem is...it requires some tricks to get the experience to not be terrible. So, if native is so great at performance, how can we make the web compete?

Let's take a look at an app that comes with every iOS device and see what features set it apart from your standard web app. Then, with a minimal rebuild of this app, we'll add UX details that are not only performant, but also make user want to use your app.

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## **So You're a New Lead Developer: Now What?**

*Matt Burke*

You've just been asked to lead a small team of developers in building a new solution for your biggest client. You're comfortable with the technology, but the added pressure of being responsible for the outcome is intimidating. You might have concerns about trusting people you haven't worked with before or with balancing your own technical output with the demands of fielding questions and peer support.

The best way to be effective as a leader is to invest in the people around you. This session will give you a framework for building supportive and efficient teams. You'll learn how to use one-on-ones to build trust, how to give feedback without tension, and how to manage the new demands on your time.

If you're an experienced individual contributor stepping into project leadership or engineering management you won't find a more relevant talk. Technology changes, but the skills you learn here will benefit you the rest of your career.

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## **Database DevOps: Options for database change management**

*Ryan Booz*

Whether you are the DBA for an Agile, Sprint-based team, or a Developer with DBA responsibilities, you may feel like the development bottleneck at every turn. Managing migrations with your ORM of choice is easy but often error-prone, especially as the project grows. Or worse yet, maybe your schema and change management is a folder full of poorly commented SQL scripts saved to a local folder.

Surely there's a better, SQL-centric way to manage databases as code, test changes, and deploy updates - right? Yes, there is!

In this session, we'll explore some popular tooling to manage database schema and code changes. Using PostgreSQL as an example database, I'll demonstrate the process from database creation to deploying changes with tools like Sqitch, FlywayDB, pyrseas, migra, SQL Server database projects, and others to provide the foundation you need to transform how you manage database changes within your daily work.

By the end of the session, you'll be ready to tame your rogue application databases, managing changes and migrations with ease, and become the envy of the development team.

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## **Stop Making QA The Last Train Stop Before Production**

*Rick Clymer*

Throughout my career, I have heard the same excuse over and over again. "We're waiting for QA before we can push this to prod." But why do we keep hearing this? What magic does QA have that no one else has to give this permission to go to production? Spoiler alert, we typical don't have too many magical powers.

This talk is designed to stop the misconception that QA is a train stop. Building a quality approach to your entire SDLC should be your goal and this talk will provide a map of how to make quality involved in every stop along the way rather than waiting until the last stop before the depot. We will discuss how you can bake quality before a single line of code is written, how to get your engineers more involved in testing their solution as they build and how to make that validation stop before production less about a specific QA person or team and more about ensuring you have fed your train the right amount of quality along the way to it's final destination. Following this pattern will allow you to get your work to production quicker with more quality than simply relying on QA to do all of the validation work.

Quality minded folks should be treated as a resource to helping the overall quality of the SDLC, not a single point of failure in your final destination.

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## **ARM, Bicep, knees and toes! Infrastructure as code for beginners.**

*Samuel Gomez*

Infrastructure as code allows you to deploy consistent and stable environments in an automated fashion eliminating the need for manual configuration. Tools like ARM, Bicep and Terraform are used to build templates that make these deployments possible, but the syntax of some of them can make it challenging to get started. In this talk, we will explore the differences between these tools and how you can deploy resources using each of them. By the end of this talk you will understand you'll be ready to create your own templates and deploy your resources to the cloud.

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## **Quiet Managing: The Antidote to Quiet Quitting**

*Becky Gandillon*

2022 was the year of "quiet quitting". Or was it? In this session we'll talk about quiet quitting and why it's likely just symptoms of underlying mismatched expectations between managers and employees. Then we'll go over some strategies for managing successful technical teams and employees. This "quiet managing" includes setting up your employees for success, getting out of their way, and letting them deliver. Trust, autonomy and empathy are key!

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## **JAMstack: Web Apps at Ludicrous Speed**

*David Neal*

If you're a web developer, chances are you have heard the term "JAMstack." Curiously, JAMstack isn't a solution to prevent clogged printers, something to eat on toast, or a way to make music. Instead, it's an architecture for designing super-fast web applications that easily scale, focused on JavaScript, APIs, and Markup.

In this talk, we'll cover the JAMstack architecture, the numerous benefits of the JAMstack approach, and frameworks and services you can use to implement a JAMstack web application. You'll walk away with a clear understanding of JAMstack and resources to quickly build your own web app at ludicrous speed!

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## **What do you mean by Event?**

*Derek Comartin*

With the popularity of Microservices, Kafka, and Event Sourcing, the term "Event" has become pretty overloaded and has caused much confusion about what Event Driven architecture is. This confusion has led to conflating different concepts leading to unneeded technical complexity.

Join Derek as he sheds some light on different aspects of Event Driven architecture, such as Event Sourcing, Event-Carried State Transfer, and Events for Workflow.

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## **Paired Programming: From Pain to Profit**

*Austin Kucera*

Some of the best companies and developers swear by pair programming, but have you noticed how painful it can be? If you've heard the propaganda and found reality didn't live up, or if you're curious to hear what the buzz is about, come discover some hard-won truths about one of the most promising and yet potentially painful practices in the industry.

Develop language to talk about what pairing looks like at its best. Then dive into hard situations where pairing is most painful. Using lessons from the trenches, extract strategies to help turn enemies into friends and to wield the sharp tool of successful pairing. Note to Introverts: Don't worry, there's no pairing or interpersonal exercises in this session! Come be equipped so you can help others move past pain, and into profitable pairing.

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## **Build a Real-Time Data Pipeline with Apache Pulsar and Apache Cassandra**

*Mary Grygleski*

The world is moving at an unprecedented pace and much of it has been powered by innovations in software and systems. While event handling, messaging, and processing are not necessarily brand new concepts, the recent emergence in hardware such as virtualizations, multi-core processors, and so on, are in fact pushing the envelope in software design and Kubernetes native development, elevating it to higher levels of capabilities never seen before. In the case of streaming which very often leverages the underlying messaging mechanism(s) to bring distributed messaging to higher forms of purposes, such as financial/trading systems, IoT edge applications, and AI/ML data pipelines, the event streaming platform has indeed become the "glue" in enabling data to flow through disparate

systems in the pipeline and in a very dynamic fashion.

We will take a look at how we can build a basic "real-time data pipeline" by leveraging on Open Source projects with:

- \* Apache Pulsar (event streaming - data in motion)
  - \* Apache Cassandra (NoSQL data storage - data at rest)
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## **Level Up on Functional Programming By Rebuilding LINQ**

*Cameron Presley*

When taking the first steps into functional programming, one quickly runs into blog posts talking about how to simplify complex loops by using the trinity of list operations: map, filter, and reduce. But what are these methods actually doing under the hood to help simplify the code?

Those familiar with the .NET landscape and LINQ already have some experience with these operators via Select, Where, and Aggregate. However, how do these methods work? What can learning about these operators teach about how other languages approach these problems?

In this session, attendees will learn about deriving their own version of LINQ by refactoring application code to common patterns and by extension how they themselves could have invented LINQ.