

# PreCompiler Day 1 Morning

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## Build your own AI sidekick with Azure AI, Semantic Kernel, and .NET 8

*Matt Eland & Samuel Gomez*

Are you a budding super hero or super villain\* but you feel like you're lacking that AI companion to help you reach that next level? Have you ever wanted to see what AI can do to help your daily life? Do you have an interesting application that would just be so much better with a little artificial intelligence? Don't fear, because of course there's a PreCompiler for that.

In this half-day workshop we'll see how to build enterprise-level AI applications by integrating AI vision, speech, and large language models into an app. We'll start out simple by seeing how to work with these APIs on their own before layering them together with Semantic Kernel to form an AI system capable of planning complex tasks involving external data and APIs.

By the time we're done, you'll have a better understanding of what AI can do and see how easy it is to integrate it into your applications. You'll also be that much closer to super hero / super villain\* status with a modular personal AI companion of your very own to continue extending after CodeMash is over.

\* CodeMash does not endorse acts of villainy including but not limited to taking over the world and/or the Kalahari.

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## Building Applications on Top of Large Language Models (LLMs) (Part 1)

*Nilanjan Raychaudhuri & BJ Allmon*

It's no secret that a new generation of powerful and highly-scaled language models is taking the world by storm. Large language models are becoming a powerful new primitive for building software. In this precompiler, we will deep dive into the rapidly evolving landscape of Large Language Models (LLMs) & how software developers can leverage the untapped potential of LLMs. The hands-on exercises will give the audience a first-hand experience building applications on top of LLMs. Using Python, OpenAI, Langchain, and vector databases, developers will learn how to build intuitive conversational interfaces for their applications, making them more engaging and user-friendly.

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## Mastering Solutions Architecture with Design Katas (Part 1)

*Gaines Kergosien & Eric Potter*

TLDR: Architects get relatively few opportunities to practice their craft, so we will group up to formulate architectural visions for "real world" business problems. Attendees will then evaluate each group's solution to gain insight into the pros and cons of different approaches.

Fred Brooks said, "How do we get great designers? Great designers design, of course." So how do we get great architects? Great architects architect, but architecting a software system is a rare opportunity for the non-architect. For this, we turn to an ancient tradition, born of the martial arts, designed to give the student the opportunity to practice more than basics in a semi-realistic way. The coding kata, created by Dave Thomas, is an opportunity for the developer to try a language or tool to solve a problem slightly more complex than "Hello world". The architectural kata, like the coding kata, is an opportunity for the student-architect to practice architecting a software system.

In this workshop, attendees will be split into small groups and given a "real world" business problem (the kata). Attendees will be expected to formulate an architectural vision for the project, asking questions (of the instructor) as necessary to better understand the requirements, then defend questions (posed by both the instructor and their fellow attendees) about their choice in technology and approach, and then evaluate others' efforts in a similar fashion. No equipment is necessary to participate--the great architect has no need of tools, just their mind and the customers' participation and feedback.

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## **Build a Modern Single Page Application with Vue**

*Matt Burke*

Vue offers developers a way to build ambitious front-end applications with powerful reactive programming patterns and an intuitive HTML-based templating language.

This workshop will give you a jumping-off point for large front-end applications using Vue with blazing-fast dev tools like esbuild, rollup, and vite. You'll learn the latest tools and patterns Vue offers for building reusable and testable UI code. You'll get hands-on practice scaling an app to multiple pages using routing and state management libraries. At the end of this workshop, you'll be ready to build complex and responsive front-end applications.

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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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## **Accessibility Auditing: Getting Started with Accessibility (Part 1)**

*Todd Libby*

This workshop is for people that are just starting or want to get started learning accessibility and how to audit. Or for the people that are in Accessibility that want a refresher or are looking to change their workflows.

The overall points an attendee should take away and learn from this workshop are:

Differences between auditing websites and mobile apps;  
What to look for when auditing;

The WCAG guidelines and best practices;  
Tools to use and how to use them;  
Differences between automated and manual testing;  
Documentation of audits and scoring them for clients;  
Using the data to make sites more accessible;  
Workflows and toolkits that make for efficient auditing.

By the time the workshop has ended, the attendee should be able to go out and audit websites for accessibility.

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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.

## **PreCompiler Day 1 Afternoon**

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### **Binary Analysis - Learn to break stuff**

*Jason Slagle & John Hammond*

In this Pre-Compiler, we'll take a dive into the world of reverse engineering.

We'll start with DotPeek and reverse engineer a handful of binaries, starting with simple and ending with somewhat more complex examples with some obfuscation. We'll also discuss problems in these tools and techniques malware authors use to avoid analysis.

Afterward, we'll really get our feet wet with Ghidra. We'll look into reversing some C binaries, C++, and Go.

If time allows, we'll look into more complicated examples of malware analysis and level up skills all around.

Some knowledge of C# and x86 assembly is helpful but not required! Come out for a half day of reverse engineering fun!

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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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## **Button masher to code master – Unity3D Workshop**

*Mason Beale & Brendan Barth*

Considered learning how to make video games, but never made the jump? Now is your time to press "space"! No matter your current career (or input device), explore your creative side in Unity and learn the essentials by improving, expanding and customizing a 3D Rollerball game. You'll start with an

intro to the Unity ecosystem before diving into a starter scene, where you'll power up some simple gameplay features to learn the basics of game development. But that's just the tutorial level! As you continue to build and customize your game, you will learn about many core video game concepts, such as User Interfaces, basic level design, collisions and player control. Take this quest to learn and have fun while you do it. You will end this session with a leveled-up knowledge of Unity and game development, propelling you into an open world of possibilities.

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## **K3s - Half the Size, Twice as Awesome: Lightweight Kubernetes**

*Chris Houdeshell*

Are you ready to conquer the Kubernetes learning curve without the pain?

Embarking on a Kubernetes journey can be intimidating. Many have endured the steep initial challenges only to find the eventual rewards. But what if we told you there's a way to make that initial climb smoother? What if you could dive in, gain hands-on experience, and build a production-ready Kubernetes environment without the typical complexity?

Introducing K3s – the lightweight Kubernetes distribution that's set to revolutionize your Kubernetes experience.

Join us in this immersive workshop, where we'll not only dip our toes into Kubernetes but also emerge with a fully-fledged, production-ready Kubernetes instance. It's time to unlock the power of Kubernetes without the usual hurdles. Let's make Kubernetes accessible and enjoyable for all. Don't miss out on this opportunity to revolutionize your Kubernetes journey with K3s!

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## **Learning R Programming and Python Together - Data Science Primer for Everyone**

Both R programming and Python have become workhorse languages in the field of data science. They have allowed practitioners to apply statistical frameworks to a vast array of data models. Today, new tools allow a combination of principles from both languages. How can tech professionals gain the right overview, especially as tools like Generational AI, Posit Cloud, VSCode, and Python In Excel introduce exciting and provocative ways to use of R and Python.

This workshop will go through the key functions of R programming and Python with respect to data models. Tips and lessons will include many of the latest libraries and how to develop models to explore data for business applications \* The basic programming protocols for importing data \* The basics of RStudio (the IDE used for R as well as Python via reticulate \* Incorporating \* Data sources and ideas for creating models, from regression to sentiment analysis \* Data visualizations \* Tips for using AI tools ethically \* Best data model practices

## PreCompiler Day 2 Morning

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### Off The Shelf AI (Part 1)

*Jordan Thayer & Robert Herbig*

Hearing about artificial intelligence is unavoidable these days if you're watching the news or staying abreast of the technical sector. We frequently hear about the power of AI-enabled tools, and are shown soundbytes of experts extolling the virtues of their approach.

While these stories inform and entertain, they also create the perception that AI is extremely difficult and exclusively the realm of experts, which simply isn't true! These days we do not need to be an AI expert to reap the benefits of the research community. Off-the-shelf open source tools exist which are powerful enough to solve many industrial problems.

In this workshop we will map business problems to tools and show how to translate a problem domain into the expected input of the tool. Using these tools will help us identify development opportunities that we might have otherwise missed and save time by not re-implementing common solving techniques.

The workshop is split between lecture portions, where we talk about common problems, formalisms, and historical applications and hands on sections where we work through demos and exercises of open source tools solving the kinds of problems we just discussed.

We'll cover the following broad topics and tools:

Three major types of AI problems:

- \* Processing Natural Language
- \* Making Sense of Data
- \* Building Controllers for Automated Systems (e.g. Robots)

Several off-the-shelf tools that can tackle these problems:

- \* ChatGPT
  - \* VADER Sentiment Analysis
  - \* scikit-learn
  - \* PyTorch
  - \* Gymnasium (formerly OpenAI Gym)
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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 go up for the magic smoke to not escape 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 get to create your own awesome game with sharks and lasers using the Raspberry Pi Pico microcontroller and a variety of other electrical components. Learn to 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!

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## **Event Storming Unleashed: Building Bridges for Effective Communication**

*Sarah Dutkiewicz*

A lot of problems that we have in software development comes down to communication issues - gathering requirements, understanding processes, reporting issues, and making sure everybody involved is on the same page. This Event Storming workshop is a dynamic and interactive session designed to transform how organizations analyze, design, and optimize their processes. Through a combination of visual mapping, collaborative discussions, and hands-on activities, participants gain a deep understanding of their systems and uncover hidden bottlenecks, dependencies, and opportunities for improvement. Event Storming fosters cross-functional alignment, improves communication, and can drive innovation, making it an indispensable tool for organizations seeking to thrive in today's fast-paced and interconnected business environment. Join us in this PreCompiler to unlock the full potential of Event Storming and empower your teams to navigate complex challenges with clarity and agility.

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## **Build an end to end Next JS app with Next auth, postgres realtime functionality**

*Dev Agrawal*

With the new Next JS app router functionality, a lot have changed with building next js applications.

In this hands-on workshop we'll build a full stack CRUD application that will use Postgres as a database, Next Auth for authorization, and even ably for real time functionality.

It'll include:

- \* Server side sorting, paging and filtering
  - \* Front end query language
  - \* Data validation on both frontend and backend
  - \* Authentication using Next Auth
  - \* Authorization of api and front end functionality.
  - \* Deployment to a node js cloud and a serverless cloud
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## Designing Effective Unit Tests for React

*Bob Fornal*

React has great tools for Unit Testing component. This doesn't mean testing is easy. There are still a lot of questions you have to figure out for yourself: How many component tests should you write vs end-to-end tests or lower-level unit tests? How can you test a certain line of code that is tricky to test? And what in the world are you supposed to do about that persistent `act()` warning?

In this workshop we'll introduce Unit Testing with React, along with a mental model for how to think about designing your components and tests. This mental model will help you see how to test each bit of logic, whether or not to mock dependencies, and will help improve the design of your components. You'll walk away with the tools, techniques, and principles you need to implement low-cost, high-value component tests.

### Table of contents

- The different kinds of React application tests, and where component tests fit in.
- A mental model for thinking about the inputs and outputs of the components you test.
- Options for selecting DOM elements to verify and interact with them.
- The value of mocks and why they shouldn't be avoided.
- The challenges with asynchrony in RTL tests and how to handle them.

### Prerequisites

- Familiarity with building applications with React.
- Basic experience writing automated tests with Jest or another unit testing framework.

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## Automated resource deployment with Bicep and Terraform (Part 1)

*Samuel Gomez & Brian Gorman*

This workshop is a hands-on exercise that will walk you through the process of deploying the resources needed to run an application in the cloud using Bicep (morning session) and Terraform (afternoon session).

The concepts reviewed during the workshop include the following:

Variables.  
Parameters.  
Modules.  
Deployment pipelines.

At the end of this workshop, attendees will have a working application deployed to the cloud and can use the skills learned to deploy their cloud resources in a consistent and automated fashion.

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## Dude, Who Broke My Linux Server?

*Ryan Price & Justin DeBo*

Linux-based operating systems are at the very core of the magic of computing technology -- and have been that core for decades. But software developers, data engineers, cloud engineers, and so many



other disciplines often have no idea how to work effectively within those operating systems. What happens when your code won't run? And how do you get things working again?

In this workshop, you'll be dropped head-first into a broken deployment machine, and you'll need to fix it, fast! This will be a fun & lightly-competitive experience for all involved. Teams/individuals will be scored automatically based on how well (and how quickly) they are able to restore their machine to its former glory.

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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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## **The Subtle Art of Communication**

*Natalie Hylton & Tristan Chiappisi*

We probably don't need this session. Technologists are excellent communicators, aren't they? But for those who would like to learn (and practice) a new thing or two, here is a session packed with experiential learning. Amongst the things that we will cover:

- Communication styles (assessment included) and the best approach for each
- Selling your idea: how to appeal to different sides of the Rhetoric Triangle
- The components of an effective message and how to use them to structure and deliver one
- More subtle (and sometimes more impactful!) aspects of communication like body language, semantics, active listening, empathy and more
- BONUS: Tools and techniques that will help you become a star conversationalist (the ones that talk show hosts, interrogators and negotiators use ;-)

The entire experience will be packed with practical exercises that will make you step out of your comfort zone and have fun doing it!

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## **Mastering TDD in Legacy Code**

*Brendan Enrick & Steve Smith*

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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## **Enhance Fullstack Workshop**

*Simon MacDonald & Ryan Bethel*

The Enhance Fullstack Workshop is designed for developers. You will learn how to build a full-stack web application (client and server) using Enhance powered by Node.js, and AWS. You'll leave with the

skills required to construct multi-page dynamic web apps that leverage the platform while avoiding so-called "modern" tools that layer on complexity and unnecessary weight.

You'll start by learning about Enhance's HTML first approach, how it works and what problems it helps you avoid. Then we'll proceed through several hands-on learning activities for building a modern web application complete with a UI built from web components, a serverless API layer, and a cloud-managed database.

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## Beyond the Cache with Redis + Node.js

*Justin Castilla*

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.

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!

## General Session Day 1 8:00 AM

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## **Simplifying Microservices with Dapr**

*Matthew Sheehan*

In the world of modern software development, microservices have emerged as the go-to solution for building scalable and deployable applications. However, the path to realizing their promised benefits can be riddled with challenges, leaving engineers with concerns about achieving a truly clean implementation.

Enter Dapr. Learn how a sidecar architecture, using the Cloud Native Compute Foundation open-source project Dapr, can help improve your microservices with its capability to codify microservice best practices and make them more portable by abstracting away your dependency on any particular platform component.

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## **Software Test Automation ?and System Design**

*Kate Jordan*

In this session I'll share with you one of the most valuable lessons that I've learned as a software engineer. From what I've seen it's not something that colleges or courses have nearly enough emphasis on for the impact that it has. Both on your skills, and the health of the systems you work in.

I'm talking about learning what it means to build software that supports having both unit and integration tests. This session will cover some key principles that are required in order to build testable code, and touch on more advanced design patterns that build on these principles. It will also make the case for why investing the time in this test automation is so worthwhile, even if it does mean more time spent by engineers up front.

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## **The User Experience Eclipse: Rise Against Dark Design Patterns**

*Scott Showalter*

Dark isn't just a trendy UI mode, nor what the sky looks like in the middle of the day in Ohio on April 8th. It's a deceitful design scheme we all encounter from time to time, against our will.

As consumers, most of us can't escape the overbearing influence that corporations have on our lives. This is particularly true when it comes to how companies use various experience design tricks, traps and persuasive tactics in their software & technology in order to take advantage of customers and coerce them into doing things like spending more money than intended.

In this session, you'll learn about the unethical psychology behind these dark design patterns that digital organizations covertly deploy in order to manipulate their users. You may even discover that some of your favorite apps are using these shady techniques on you without you even knowing it.

You'll also walk away with the skills to ensure that your team does not fall prey to such ploys, including negotiation with challenging stakeholders, so y'all can build better products together that positively impact customers' lives.

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## **Neurodiverse Coders: Unlocking ADHD & Autism Superpowers in Tech**

*Gaines Kergosien*

In the tech world, diversity isn't just about backgrounds; it's also about how we think and process information. ADHD and Autism Spectrum Disorder (ASD) are often pigeonholed as challenges. However, what if we told you that these so-called 'disorders' house superpowers that can be game-changers in the realm of coding and software development?

Join us as we delve into the remarkable abilities often associated with ADHD and ASD - like laser-sharp focus, unparalleled attention to minutiae, and a natural flair for discerning patterns. More than just a session, this is a call to action: to shift our industry paradigm from focusing on perceived deficits to recognizing and leveraging these neurodiverse strengths.

During this session, attendees will:

- Gain insights into how traits associated with ADHD and ASD can be massive assets in the tech and coding environment.
- Learn strategies to nurture and harness these neurodiverse strengths, creating a more inclusive and effective workplace.
- Challenge and reshape their perceptions about neurodiversity, emphasizing a strengths-first approach.

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## **Securing Your Software Supply Chain One Open Source Project at a Time**

*Lori Lorusso*

Delivering software fast is one piece of the CI/CD puzzle, but delivering it securely is the glue that keeps your puzzle from falling apart. Software supply chain attacks are on the rise with security exploits directly targeting open source projects, central repositories, and software package managers. Now that developers are the target of security attackers, how do you protect your DevOps pipeline?

This is a problem that foundations like the Continuous Delivery Foundation (CDF), OpenSSF, CNCF and OWASP are working to solve.. To help ensure a secure SDLC, these vendor neutral, developer focused communities are investing in projects that provide security solutions. This talk will highlight the importance of securing your software supply chain at the source and how technologists all around the globe are working to solve this problem.

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## **Using Web Components to Scale Your UX**

*Burton Smith*

Whether you're a company with a variety of projects or an app that uses micro-front-end architecture, creating a consistent and reliable user experience can be difficult.

In this session, we will discuss how, at Microsoft, we have leveraged web components to standardize our user experiences and improve developer efficiency.

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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.

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## How to Ground LLM's to minimize hallucinations

*Cameron Vetter*

Language models have made significant advancements in recent years, with models like GPT-3 and GPT-4 showcasing impressive capabilities. However, one persistent challenge that arises with these models is the occurrence of hallucinations—instances where the model generates plausible-sounding but incorrect or nonsensical responses.

In this talk, we will explore strategies to ground language models to minimize the occurrence of hallucinations. By grounding LLMs, we aim to enhance their reliability and ensure that the generated outputs align more closely with factual accuracy and logical coherence.

We will discuss various techniques and approaches that can be employed to address hallucinations effectively. These may include fine-tuning the models on domain-specific data, incorporating external knowledge sources, leveraging human-in-the-loop feedback, and implementing robust evaluation mechanisms.

Furthermore, we will delve into the underlying causes of hallucinations and examine the limitations of current language models. By understanding these factors, we can develop targeted strategies to mitigate the occurrence of hallucinations and improve the overall performance of LLMs.

Join us in this talk as we explore practical methods to ground language models and minimize hallucinations. Discover how these techniques can enhance the reliability and trustworthiness of LLMs, making them more suitable for real-world applications across various domains. Together, let's unlock the full potential of language models while ensuring their outputs align with factual accuracy and logical coherence.

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## Be an Ally for Mobile A11y

*Rachael Yomtoob*

Accessibility for the web has gained visibility in the last few years, but what about mobile apps? Let's talk about why making your mobile app accessible is just as important, if not more important, than building an accessible website. I'll introduce how digital accessibility standards like the Web Content Accessibility Guidelines (WCAG) can apply to the mobile ecosystem, and what technologies and tools

are available for building accessible apps.

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## Java Anti-Patterns

*Vitaliy Matiyash*

God object, spaghetti code, magic numbers? Anti-patterns are traps that developers encounter frequently due to lack of time, carelessness, inexperience, or pressure from project managers. Rushing can lead to big problems for applications in future, so you need to know how to avoid potential errors.

Come learn about Java Anti-Patterns. In this session beginner Java developers can learn to identify common rookie developer mistakes. Experienced developers can cry or laugh together as we look at real-life examples of Java code. You will leave this session knowing how to avoid these anti-patterns and write elegant, maintainable, and (dare we say it?) fun to work with code. Finally, you will find better ways to implement solutions using Java.

## General Session Day 1 9:15 AM

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### Don't Build a Distributed Monolith: How to Avoid Doing Microservices Completely Wrong

*Jonathan "J." Tower*

As a consultant, I get to see many systems built by many different developers. Recently, I've seen an uptick in the number of systems built with a microservice architecture in mind, but those systems often include a lot of the same mistakes that keep them from working well.

In this session you'll learn from my experiences and get pointers on what to avoid in your microservices implementations so that you don't accidentally build something which has all the worst aspects of a monolithic application and the worst aspects of microservices. These monsters are what I call "distributed monoliths", and I can help you avoid building one accidentally.

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### Not Your Mother's or Father's C#

*Brendan Enrick*

Gone are the days of verbose C# code and having only one way to solve a problem. In recent updates, C# has been adapting ideas from other programming paradigms, including functional programming. Some of the most recent ones have significantly changed the appearance of C# code. We'll see what you think after this session!

Whether you're using C# every day, or you haven't looked at the language in a while, this fast-paced session will show you what has been changing in the C# world.

Unlike the classic "coming soon" session where you can't take what you learn home and apply it, you can take what you learn here back home to remove redundant code, streamline your classes, and add flexible type constraints. This is a fun, fast-paced session that will provide you with the insight you need to make the changes you want in your code.

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## **Finding your Motivation and Managing When you aren't Motivated**

*Jennie Ocken*

We are all motivated by different things. But most companies and managers only know how to encourage employees through money or title. By better understanding what motivates each of us, we can be better teammates, managers, and people. In this session we will learn:

- The 8 different kinds of motivators people have and how they impact engagement
  - What kinds of motivation profiles fit different jobs and strategies for compensating for lacking motivation in an area that is essential to your position
  - How to use existing employee engagement funds and structures for employees not motivated by money or position
  - When to force yourself to care about a motivator and how to do it
- 

## **Managing a Rewrite Without Getting Stuck in the Tar Pit**

*Randall Koutnik*

It's a tale as old as time: our startup had finally found success and was ready to scale up, but we'd taken on a huge amount of technical debt to get there. In particular, our frontend still relied on an old templating system! How could we rewrite our frontend to take advantage of modern tooling while still delivering features?

If this challenge sounds familiar, you're in the right place. Learn how to convince your leadership to start a migration project, how to measure progress, and strategies for getting the whole team on board. You'll leave this talk with the knowledge and confidence to start your next migration off right.

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## **Meet Your New BFF: Backend to Frontend without the Duct Tape**

*Dev Agrawal*

Even with all of the incredible frameworks available today vs. a decade ago (or even two—for devs who have been around as long as I have), it still feels like much of our work as fullstack developers is still repetitive, and held together by duct tape code we shouldn't be writing.

This is because we write a lot of duplicate and boilerplate code for everyday things such as simple database CRUD, data validation, authorization, and data-type conversions, but the majority of these tasks haven't advanced at the pace of modern web architecture.

In this live coding session we'll turn a front-end app into a fullstack app with code that is easy to write, follow &, most importantly maintain, with end-to-end typesafety (say no to GraphQL!), consistent and encapsulated validations, live querying, access control, secured APIs, you get the idea.

You'll come away from this session able to build apps for modern web architecture while still maintaining our code DRY and increase productivity.

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## **MSBuild Unleashed: Breaking Free From Complex CI Pipelines**

*Dan Siegel*

In today's rapidly evolving software landscape, Continuous Integration (CI) and Continuous Deployment (CD) are the linchpins of a streamlined and efficient development process. However, with



myriad build platforms, technologies, and tooling, we often find ourselves entangled in complex build pipelines that require platform-specific tasks and scripts. Is there a way to untangle this web and create build processes that are not only reproducible but also portable across different environments? The answer lies in leveraging the extensibility of MSBuild.

Join us in this immersive session, where we delve into the powerful capabilities of MSBuild, the heart of .NET build. You will learn how to extend MSBuild with custom tasks and targets to replace complex PowerShell and Bash scripts or platform specific steps on GitHub Actions or Azure Pipelines. The session aims to empower you with the skills needed to:

Understand the core concepts of MSBuild Tasks and Targets.

Extend MSBuild to perform specialized tasks during your build process.

Create build configurations that are both reproducible and platform-agnostic.

By the end of this talk, you'll walk away with a toolkit for designing cleaner, simpler, and more efficient CI/CD pipelines that can run identically, whether you're building on a developer's machine or a hosted build agent.

Ditch those complex scripts and build steps, and come explore how MSBuild can simplify your build processes and make your CI/CD more robust and maintainable.

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## **Black Box Techniques for Unit Tests**

*Jenna Charlton*

One of the greatest strengths of modern development is the ease of unit testing for many languages and frameworks. Obviously, you're testing your code—but are you thoroughly testing it? Are you testing the right things? Is there more you could be testing?

Enter black box testing techniques. Equivalence partitioning. Boundary value analysis. Decision tables. Combinatorial testing. State transition testing. While black box is done without considering the code, these are the foundational testing techniques and can be applied to any type of testing. You'll learn about each type of testing and how to apply it to different situations to understand the features better and engage in deeper testing.

Join me as we walk through these five foundational techniques and how we can apply them to our unit tests. You'll come away from the talk with a stronger understanding of testing and how to go beyond 'Does it work' into 'Does it work well?'

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## **Reasonable Accommodations in the Workplace**

*Erissa Duvall*

Reasonable Accommodations can be a life saver for so many. They can be the difference between struggling to accomplish work tasks and flourishing. They can also benefit more people than you may realize.

What kinds of things could be considered workplace accommodations? What might you need to do to ask for an accommodation or to provide one?

I am not a legal expert, but I'll share my experiences with requesting / supporting reasonable accommodation requests to give you a starting point. I want to help you help yourself and/or others be

more productive and feel more welcome through reasonable accommodations.

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## **Building a Full-Stack Application with Flutter and Dart**

*Ryan Edge*

For the past few years, Flutter has revolutionized mobile app development by allowing developers to build high-performance, cross-platform applications with ease. However, building a full-stack application can be a challenging task because we often find ourselves juggling multiple technologies to solve problems across an application stack.

In this talk, we will explore how to build a full-stack application using Flutter and Dart Frog.

Dart Frog is a backend framework that, when coupled with Flutter, allows developers to build full-stack applications using a single programming language. By leveraging the power of Flutter for the front-end and Dart Frog for the backend, developers can build high-performance applications with ease.

We will start by introducing the basics of Flutter and Dart Frog and their key features. We will then dive into building a full-stack application, starting with the front-end using Flutter, and then moving onto the backend using Dart Frog. We will cover topics such as handling user authentication, building RESTful APIs, and using a database to store data.

Throughout the talk, we will also discuss best practices for building full-stack applications and how to ensure that your application is scalable and maintainable. We will also highlight the advantages of using Flutter and Dart Frog together, including reduced development time and increased developer productivity.

By the end of the talk, attendees will have a solid understanding of how to build a full-stack application using Flutter and Dart Frog. They will also have learned best practices for building scalable and maintainable applications, as well as the benefits of using Flutter and Dart Frog together.

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## **Exploring Cloud Native MLOps for GenAI Vector Search**

*Mary Grygleski*

ChatGPT has been in the center stage since early this year. We will first take a look into this exciting sub-new field of Generative AI, and understand what LLM and NLP are, and the challenges that all of these are presenting themselves. We will also highlight the importance of Vector Search, and what a Vector DB's role is helping with the embeddings and fast index pattern matches/searches. While it is exciting, we also need to ensure that the process of building, integrating, and continuous deployment are being handled in the most efficient way, and by leveraging the cloud native environment with Kubernetes, we will examine how the process can be optimized by leveraging on the serverless and event-driven nature of a typical cloud native environment.

MLOps—machine learning operations, or DevOps for machine learning—is the intersection of people, process, and platform for gaining business value from machine learning. It streamlines development and deployment via monitoring, validation, and governance of machine learning models. With the rapid rise in popularity in GenAI, we will explore how the operational side of things will be impacted and what MLOps will differ from DevOps.

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## AI Speaks: Giving Large Language Models a Voice with Alexa

*Craig Walls*

Large Language Models (LLM) have been quite the buzz lately, offering one of the first tangible applications of artificial intelligence for the masses. Despite quirks and "hallucinations", LLMs show real promise of being a valuable component in the future of thinking machines.

Meanwhile, for a few years, voice technologies such as Amazon Alexa have enabled applications that talk and listen to users, creating a natural and lifelike user interface. The pairing of Alexa and LLMs seems all too obvious: A thinking machine that can converse with its users.

In this session, we'll explore ways to bring LLMs to life with voice. We'll consider a handful of popular LLMs and see how to integrate them into a voice user experience offered by Alexa. You'll leave with a basic understanding of where the integration points are and hopefully be inspired to create amazing and unique user experiences.

## General Session Day 1 10:30 AM

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### Async/Await from the Ground Up

*Stephen Cleary*

An async refresher course for developers who use async and await but want to really understand what's going on.

This session is a "re-introduction" to async and await. It covers what the keywords mean and - just as importantly - what they \*don't\* mean. We'll be covering What You Need To Know, including several different conceptual models of async/await that you can switch between at will. This refresher course will take a look at the common async best practices with a careful examination of why they're best practices and when to ignore the best practices. We'll be including some semi-advanced topics (specifically ValueTasks, asynchronous disposal, and Channels) to round out techniques for modern asynchronous development.

While this talk is geared towards developers who already use async and await, it would also be appropriate for those who do not (yet). Feel free to bring questions!

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### Tactics for Building Background Services in .NET

*Kevin Griffin*

Mature applications often find themselves in the predicament of having to do work "behind the scenes." Frequently this could be simple tasks such as sending emails or updating statistics. Or it could be something more complicated, like processing incoming files or building reports. These tasks should not impede the user experience because they can be done in the background.

But in modern .NET applications, what's the best way to implement background services? There isn't necessarily a right or wrong way, but there are ways that are "easy to write" and methods that are "easy to scale."

This talk aims to take you on a journey through several processes that allow you to do work in the background. We'll cover the pros and cons of different approaches and leave you with actionable

advice to take back to your projects.

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## **Isn't it time to ditch code coverage? Focus on high value tests instead**

*Steve Odell*

As engineers, it can be difficult to use metrics to measure the value of what we do. One metric that typically falls short is code coverage because it can't measure how WELL our application has been tested, rather, it focuses how MUCH has been tested. What if we ditched this traditional metric and focused on what's truly valuable instead?

In this talk, we will employ a testing strategy that provides higher value than traditional code coverage strategies. This strategy will center around a hyper focus of writing HIGH VALUE tests paired with developing a culture of quality within your organization. As a software or QA engineer, you will walk away with a greater understanding of when to employ different types of tests (unit, e2e, integration, etc.) so that they are providing high value rather than chasing code coverage. Additionally, you will learn the behaviors and strategies to build a culture of quality to replace the accountability that is traditionally driven by Code Coverage.

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## **Building a Pan/Tilt/Zoom Live Streaming Camera Rig**

*Todd Sharp*

In this session, you'll see how I used an Xbox controller, Arduino, a few servo motors and some HTML and JavaScript APIs to build the whole assembly. Even if you don't need your own PTZ rig, you'll still learn about some really cool JavaScript APIs like Web Serial, and the Gamepad API that you may not be aware of.

If you've ever been in the market for a webcam that supports pan, tilt and zoom (PTZ), you'll know that it's pretty difficult to find one for under \$1000. That's just silly, when we have the technology and APIs to build our own for around 100 bucks!

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## **Modern Authentication and Authorization with OIDC, OAuth2, and Resource-based Permissions**

*Eric Boyd*

Open web standards for authentication, authorization and delegation are especially important in our connected, integrated, and mobile world. There are expectations for single sign-on, integration with external partners, multi-tenancy, identity across application tiers, and authentication with multiple identity providers.

In this session, you will learn about the OpenId Connect (OIDC) and OAuth2 standards. You'll learn how to get started with Microsoft Entra ID, Azure Active Directory B2C, and Duende IdentityServer. You'll learn how to integrate modern identity protocols into your applications and APIs. And you'll also learn how to implement resource-based permissions in your applications.

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## **Scaling Web Frontends Across Teams**

*Cory House*

At some point, a web app's frontend becomes too complex to manage via a single dev team. In this session, we'll explore patterns and techniques for splitting an app across teams. We'll discuss component-driven development patterns, micro-frontends, shell apps, reorg strategies, monorepos, vertical slicing, and more. After this session, you'll understand how to successfully deliver a cohesive web app user experience via multiple autonomous teams.

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## **Effective Observability for MLOps Pipelines at Scale**

*Shivay Lamba*

As the world embraces AI and adopts machine learning, many companies are moving towards using models like the LLMs. Deployment and monitoring such large models are extremely important. As traditional DevOps Engineers, you might not be exposed to working with machine learning systems. This is where MLOps comes in. MLOps is widely talked about and used to make the practice of deploying, managing, and monitoring ML models in production easier. Monitoring ML training or evaluation jobs is obviously very important however it is more important to monitor once an ML model is deployed.

This talk first starts by giving a gentle introduction about how ML deployments should be monitored, briefly talking about edge cases in production, data drift, concept drift, model metrics as well as the standard system and resource metrics. We give the audience an overview of observability and monitoring in the context of MLOps. This monitoring could also provide valuable results in terms of whether a model should be retrained, if more data should be collected, if different kinds of data should be collected, and more.

We show how one can handle the very important task of monitoring and performing the aforementioned tasks in the context of MLOps with Prometheus. We also show how one could take their existing deployments and add the power of easy and useful monitoring with Prometheus. We will share how this has been accomplished at scale at our workspace including demos using Seldon, Flyte etc.

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## **Hybrid Agility: Working Conditions for Team Success**

*Carina Silfverduk*

Is your team or workplace working hybrid, with some in the office and some remote on any given day? Working hybrid is by far harder than either remote or on-site work because you need to accommodate both and then do something extra to keep everyone in the room and everyone on the call engaged.

How do you ensure that teammates can all contribute and there's nothing left unsaid? What techniques can you use to put everyone on equal footing when your teammates are across an ocean or still finishing Monday's work when you start your day on Tuesday?

Working hybrid is a muscle that needs strengthened in order to unlock inclusion and diversity of thought for all team members no matter their location. Join this session to learn ways to build your 'working hybrid' muscle, smooth the way for hybrid work and ensure you are including and engaging all of your colleagues and your team.

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## **Accessibility in the Enterprise: The Relationship of A11y and ROI**

*Chris DeMars*

As we build more and more things on the web, accessibility is gaining much more visibility. But what does it actually mean to you and your company? It means we **HAVE** to be cognizant of everyone, all the time, with no exceptions as we do our part in building awesome, accessible user experiences to people of all levels of ability while being mindful of our users' diversity of disability. Accessibility on the web is not a nice-to-have, but a requirement: leaving out at least 20% of your audience can be detrimental to your organization's return on investment and bottom line. Not sure what to do? Let's fix that! Let's talk about all of the reasons that accessibility is essential to your organization and your users. You'll learn ways to ensure you're providing the best possible experience for all your users by sharing real examples from my time building and testing accessible applications to ensure you're truly delivering inclusive experiences.

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## **Survival Under Fire: How to Stay Whole During Adversity**

*Arthur Doler*

Each of the last few years have hit like a brick to the temple. It felt like the entire world was upended. There's been radical shifts in the way we work, endless video conference calls, social and political unrest, and lots of tough choices about our health and the health of those we love and care about. In short, it's been a complete trainwreck of psychological trauma, with no clear signs of when normality will ever return. In times like this, it might feel like there's nothing you can do but hold on for dear life.

But there *are* things you can do. You can start to understand what happened to your brain during this time. You can figure out how your brain handles traumatic events like this, learn how to recover as things slowly start to get better, and you can begin to prepare yourself for future crises. Take the time to make your brain your ally, and you won't be fighting it during the next crisis that comes along.

## **General Session Day 1 11:45 AM**

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### **A Contrarian View of Software Architecture**

*Jeremy Miller*

I've spent an inordinate amount of time the past half decade across multiple companies working with very large, long running enterprise systems. Especially in long running, constantly changing systems, you want the code to be easy to understand, relatively painless to extend or modify, and when advantageous, be simple to modernize with updated technology. Unfortunately, the systems I've worked on have consistently failed to satisfy these goals.

Ironically enough though, my judgment is that the code in these systems has been hard to understand, extend or change, and modernize because they had all adopted much of the very industry conventional wisdom about how to build large, maintainable systems.

In particular, I want to demonstrate and explain how I think that prescriptive, layered architectural styles like Clean or Onion Architecture can actually cause harm in larger systems. I also want us to train our sights on how teams attempt to hide the actual persistence technology with "repository" abstractions and why I also think that's harmful. I want us to shine a light on how teams fall down a trap of organizing code around business entities or data storage in ways that helps make the code in big systems hard to work with.

And of course, we're going to talk about alternatives, or at least ways to ameliorate the potential problems with prescriptive architectural approaches. In particular, I'm going to show the shift to vertical slice architecture approaches for organizing code. I'm also going to examine ways to reduce code ceremony to improve code readability and use that to show the negative tradeoffs of using approaches like the Clean Architecture that mandate some elements of code ceremony to "force" developers into a consistent approach. And finally, we're going to examine whether or not "consistency" should be a first class goal in code organization or architecture.

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## **You're Doing Exceptions Wrong**

*Matt Burke*

Exceptions are powerful and valuable, but we frequently misuse them and destabilize our applications. We fear users seeing an error message, so we swallow the exception, creating troubleshooting nightmares down the road. We fail to check inputs and throw them at all, letting garbage into our databases that ruins our application's correctness. When we do actually get around to throwing an error, we use unclear messages that mislead and distract or we go overboard and cover our entire codebase with annoying try-catch blocks that make the code impossible to read.

It doesn't have to be this way! This talk will tell you about numerous exception-related antipatterns and how to fix them. You'll get practical examples born of real-world codebases that show you how to design your systems in ways that are easy to troubleshoot. If you're new to object-oriented programming with exceptions, you'll get a lot out of this talk: you'll learn how to do exceptions the right way and enjoy safer and more maintainable code.

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## **From IC to EM: How to Know if Management is Right for You**

*Andrea Rhodes*

"What do I want to be when I grow up?" This isn't something that we only ask our younger-selves, but our older-selves as well. At some point in your career, you've probably been asked: "Have you thought about growing into the people management area?" If you have (or even if you haven't), and you weren't sure how to start to think about answering this question, then this session is for you!

This session will go over 12 signs that you're ready for a management position (and 12 signs that maybe you aren't) and what to expect when saying "yes" to an Engineering Manager position. Ultimately, this session will help give you an answer to the question: "Is a people manager what I want to be when I grow up?"

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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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## **The Illustrated Guide to Node.js**

*David Neal*

Node.js is a compelling platform for building all types of applications for startups to enterprises. Node.js strategically unites developers through the universal language of JavaScript. Or TypeScript! Why should you learn Node.js, and where do you start?

You will walk away from this fun introduction to Node.js having learned its strengths and the tools you need to be productive. We will cover a typical workflow of creating and debugging a web application. We'll also look at popular frameworks, libraries, and learning resources to give you the best start.

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## **Long-Term Planning in an Agile World**

*Jeremy Jarrell*

“Long-term” and “Agile” typically aren’t two words that go together. After all, agile teams prize reactivity and adaptability over firm plans set in stone. But these two concepts aren’t mutually exclusive. In fact, the best-performing agile teams keep one eye on their longer-term strategy to ensure it still aligns with what they’re learning from their customers.

In this session, you’ll learn the different lenses through which agile teams view short-term, near-term, and long-term planning and how you can apply these same lenses with your own team. You’ll also learn common frameworks that can be used at each level of planning, as well as what amount of adaptability you can expect at each level. Finally, you’ll learn how each of these different levels of planning work together to create a coherent and cohesive strategy for your team.

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## **Terminal, CLI's, and UI's - Using Windows Terminal & the WSL**

*Mike Nelson*

The classic Windows Terminal app allowed for simple command line integrations. But now, the new Terminal app, along with the Windows Subsystem for Linux (WSL), can generate some really cool interaction between you and multiple operating systems. Not only can you do command line, but the Linux X-Windows UI is live on the Windows platform as well. Cross-platform development, extensible code, native UIs and more can be realized when extending the full power of these features with other objects like Docker containers and K8's. We will share tips, session files, settings files, and more!

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## **GPT Embeddings - Not Magic, Just Math**

*Barry Stahl*

Embeddings may be the least understood yet most valuable tool to come out of the world of Large



Language Models. In this presentation, we will unravel the mystery of embeddings, emphasizing their mathematical foundations and practical applications.

We'll start by discussing what embeddings are, and what they represent. Then we'll delve into the variety of tools we have to compare and contrast them, including Cosine similarity and distance, as well as clustering. Then we'll put those tools to use creating powerful applications that go beyond just typical chat and analytics use-cases. Because we'll be focusing on operational use-cases, code demos will be done using C# rather than Python.

Attendees will leave with a deeper understanding of the mathematical underpinnings of embeddings, practical knowledge of how to use them, and an appreciation for their value in our applications. This session is ideal for developers, data scientists, and anyone interested in the mathematical underpinnings of machine learning and natural language processing.

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## **Design Systems as a Foundation for Accessibility**

*Marko Skugor*

Design systems are at their core a repository of solved UX interaction design problems made re-usable and highly visible for others to leverage. Accessibility, on the other hand, is an outcome that is usually hard fought for and hard won for any organization - especially at scale. As technologists, it's our responsibility to build applications that allow everyone to participate more actively in society, and design systems provide the perfect architecture to get started on that journey. An accessible design system provides us much more than just a foundation for building with accessible components - it also provides a centralized source of documentation on how to get the larger scale experience design (and accessibility patterns) correct. In this session we'll look at how design systems and their governance structures can be intentionally constructed as a center of excellence and focal point for accessibility maturity for organizations of any scale.

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

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### **The Other Side of the Table - Salary Negotiation from a Management Perspective**

*Nick Stewart*

Salary negotiation is a daunting task, and it can be made all the more confusing, if you don't understand the position management often has to take. One of the best strategies for a successful negotiation is to determine what the other side values, and it's not always the lowest number. In this talk, we'll answer the following:

- What constraints does an HR department put in place?
- What budgetary concerns do managers have to balance?
- How does salary negotiation interact with development plans and job titles?
- How does that change for small companies vs. large enterprises?

The answers to all of these will help you craft a better strategy for your next salary negotiation, from when to start it, to how to conduct it, and when to plan the next one.

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## Rebuild your APIs Better, Stronger, Faster with Minimal APIs

*Jonathan "J." Tower*

If you currently have a controller-based API built in ASP.NET or ASP.NET Core, you might be eager to embark on the journey of transitioning it to a Minimal API approach, but not know the best process to make it happen. If so, this talk is tailor-made for you.

We will delve into the advantages of using Minimal APIs, including the simplification of complexity and the boost in performance. We'll also go through a methodical, step-by-step migration process, complete with illuminating code examples so you can see the process in action.

By the end of this session, you'll be well-equipped to update any of your ASP.NET or ASP.NET Core APIs from controller-based code into the realm of sleek and effective Minimal APIs.

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## Dev Containers. What are they and why do you need them?

*Joseph Guadagno*

You're onboarding a new team member, or your team recently inherited a project that uses a different SDK/framework version than your current project uses. What do you do? Install the old SDK/framework versions? Can they even be installed at the same time on the same machine? What if I told you there was a way to accomplish this with little to no effort on your part? Well, with Visual Studio Code, Docker, and the Dev Containers extension, you can. Dev containers can help you easily on-board new people to your projects, allow for cleaner machines with greater support for multiple SDKs/Framework, and be able to develop/debug/run your solution from anywhere without Visual Studio Code. Oh, and put an end to "It works on my machine"

In this talk, I'll walk through how you can set up a dev container to support your application development, without installing the SDK/framework on your machine. I'll show you how to get started and how you can solve the age-old problem of "It works on my machine!". As a bonus, if your code is hosted on GitHub, I'll show you how you can run/edit/debug your project right from GitHub.com without Visual Studio Code on your machine.

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## Prime (re)Factoring

*Steve Smith*

You've probably heard of refactoring, but did you know the term originates from the process of factoring programming code? In mathematics, factoring is used to pull out factors of numbers through division, and importantly prime numbers have factors of only themselves and the identity constant, 1.

Software also has factors, and the process of factoring is used to help reduce the scope of complex software to its prime factors, each of which elegantly performs a single function or responsibility.

Learn how to factor - and refactor - your non-prime code into more elegant, testable, and maintainable prime code.

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## Modern Web Automation Testing

*Bob Crowley*

Modern web applications require a modern tool for automated testing. Something that can handle both mobile and desktop, async operations, shadow DOM, all the browsers and much more.

Enter Playwright. Designed for all the needs of modern applications, Playwright checks all the boxes.

This session is all about getting to know how Playwright works and seeing its features in action. Features like Codegen to generate tests by recording user actions, the Inspector which allows you to step through detailed history, the Trace Viewer that captures detailed execution information, recording videos and screenshots and an overview of the API.

Demos will use Typescript, but this cross platform tool also supports javascript, Python, .NET and Java.

So ditch those flaky tests, grab a tool that has all-inclusive features and enjoy reliable end-to-end testing for building robust web UI's.

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## **self.clone();//Passing On Your Passion**

*Barry Tarlton*

When you've written your last line of code, what will be your legacy? Will your applications live on forever in Production or at least until AI takes over? Will your Github repos be archived and immortalized? Will there be patterns or tools named after you? For most of us, there probably won't be great fame or fanfare about our amazing contributions to digital environments. However, while using software to creatively solve real world problems is exhilarating, creating someone else who can do the same is an even more rewarding experience. In this session, we will talk about how to pass on our passion for problem solving with code to the next generation. Whether you are a relative noob with little experience or a seasoned veteran with decades of crusty code under your belt, we will learn the importance and how-to of uplifting the nerds of the future. CLONE THINESELF!

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## **Debugging JavaScript and React**

*Mark Erikson*

## Description / Abstract

As developers, we spend much of our time debugging apps - often code we didn't even write. Sadly, few developers have ever been taught how to approach debugging - it's something most of us learn through painful experience. The good news is you can learn how to debug effectively, and there's several key techniques and tools you can use for debugging JS and React apps.

In this talk, we'll look at:

- Core principles and steps for approaching debugging
- How to use both print logging and GUI debugging tools effectively
- Specific tips for debugging JS code
- Approaches and techniques for debugging React components and Redux logic

## Structure / TOC

- How to Approach Debugging

- Why is debugging important?
  - Core principles and mindset
  - Scientific steps for debugging
  - General tips and techniques
  - Debugging Tools
  - Print logging vs graphical debuggers
  - Print logging techniques
  - GUI debugger concepts and controls
  - GUI debugger techniques
  - Time-travel debugging with Replay
  - Debugging JS
  - Logging methods and console interaction
  - Working with 3rd-party libraries
  - Debugging React and Redux
  - Understanding React's component model, data flow, and common mistakes
  - Using the React DevTools
  - Understanding Redux's data flow and common mistakes
  - Using the Redux DevTools
- 

## **A Hands-On Overview to Building AI Solutions with AI Builder**

*Barret Blake*

Whether it's generating automated interactive chat experiences or automating business processes, AI is the future of business software. AI Builder is a powerful tool for organizations looking to incorporate the power of AI into their business processes.

In this talk, we'll explore the key features and capabilities of Power Automate's AI Builder and demonstrate how it can be used to build and deploy AI models quickly and easily. From automating tedious tasks to enhancing customer experiences, we'll examine the various use cases for AI Builder and show how it can help organizations drive innovation and growth. Whether you're new to AI or looking to expand your knowledge, this talk will provide valuable insights and best practices for using AI Builder to unlock the full potential of artificial intelligence to automate your work processes.

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## **Building Relationships for Better Security**

*Darylynn Ross*

It's 2024 and software engineering teams and security teams are still struggling to figure out how we can all just get along. Engineering teams are commonly frustrated and annoyed at all the extraneous stuff security wants them to do. And security teams are commonly frustrated with the lack of results they see in vulnerability remediation and secure coding efforts. There's got to be a better way to work together.

Come explore how building relationships between engineering teams and security teams can remove some of the frustration we all feel in the software product development world. We will discuss how culture, empathy, advocacy, communication, leadership and negotiation skills can change things. Security initiatives like a security champions program, a security community of practice, meaningful training, and team collaboration are important on the security side. This session isn't just for managers or security practitioners, it's for everyone who works in IT and deals with security challenges.

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## Services Reloaded: Increased Throughput with Project Loom Virtual Threads

*Kito Mann*

The promise of Reactive programming models is that you can free yourself from the constraints of handling one request for each thread and realize increased throughput as a result. The only problem is that it requires a completely different set of APIs that many developers find counter-intuitive. What if you can achieve the same performance using thread-per-request APIs, and let the Java virtual machine handle the hard work of blocking when appropriate, and executing platform threads when the time is right? Enter virtual threads, a key feature of Project Loom, currently available in JDK 19. In this session, we'll look at how different frameworks, such as Helidon and Quarkus, are using this powerful new feature to increase throughput without requiring reactive programming models.

## General Session Day 1 3:30 PM

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### Out of Control: How to Rescue a Struggling Software Project

*Cory House*

We were drowning in bugs. We had countless partially implemented features. We had no tests, few types, no CI, no error handling, and we couldn't demo our work reliably. Developers kept copying anti-patterns in our code. Our software was out of control.

If you want to improve quality and velocity, this session is for you. In this session, I'll share techniques for rescuing software projects. I'll show how we rescued a failing project by incrementally implementing quality controls.

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### Bad Tendencies in Leaders and How to Manage Up

*Benjamin Dobrowolski*

No matter where you've worked, we've all had those bosses that we've not gotten along with.

But what if you did more than complain about it? What if you could "manage" your boss, to not only your benefit, but to your co-workers benefit as well?

Take back control and learn to manage up so that you can work with all types of people and succeed no matter the environment.

In this talk, we cover the common archetypes of "bad leaders", why they operate this way, and practical methods to work with difficult leaders so that you can keep the work moving and your sanity intact.

There's no miracle cures here, but you'd be surprised on what's possible.

Target Audience: Contributors who deal with frustrating leaders, and for leaders themselves who are willing to be self-reflective.

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### Stop using JavaScript for that: moving features from JS to CSS and HTML

*Kilian Valkhof*

If you've been building websites for a while you "know" that some things require JS and that's just the way it is. Turns out, spec writers and browser makers both are working hard to find common JS patterns and implementing them in CSS and HTML. Things like accordions, auto-suggest, smooth scrolling, dialogs are all available without JS. Looking a little ahead, things like parallax scrolling, styleable selects and component-dependent styling are expected to make their CSS-debut as well.

In this talk I walk through a few common patterns, explain how they can be implemented in CSS and HTML, how that's better and what accessibility implications they have, both for features available today and feature available soon™?.

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## **One app, multiple platforms: How Cross Platform Actually Works**

*Mike Hartington*

Today's solutions for cross platform development all aim to provide developers a better way to build their apps. Build your app in a certain way, and you can ship it to multiple targets (iOS, Android, Web, etc.) with ease. But not all solutions are created equal, and it can be difficult to understand the benefits of one solution over another.

But it doesn't have to be this way. In this talk we will look at some of the top cross platform technologies, see how they actually work, why you would use one solution, and why you should rethink your perception of what tool is "the best".

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## **Does Your API Need a REST? Check Out GraphQL**

*Dan Vega*

GraphQL is a declarative query language that simplifies retrieving data from an application's back end. It provides a clear and comprehensive description of the data in your API, giving you the ability to request only what you need. This makes it easy to evolve APIs over time and enables powerful developer tools.

In this talk, I will cover the basics of GraphQL and how it differs from traditional RESTful API architectures. You will learn how to construct API requests using the query language on the client side. On the server side, you will learn how to create a schema and data fetchers (controller methods) to power them. We will also discuss best practices for building GraphQL APIs with Spring Boot, including batch loading, pagination, and error handling. By the end of this talk you will have everything you need to build your first GraphQL API in Spring.

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## **Learning, Giving Back, & the Art of Community**

*Mike Nelson*

As you journey through your career(s) in IT, it is becoming more critical for you to immerse yourself in the network of worldwide and regional communities that are available in just a few mouse clicks. The drive for continuous learning, combined with the passion for giving back through many different avenues, should be engraved in your professional and personal goals. Come and listen to some great stories, a little bit of role playing, and best practices for teaching yourself the Art of the Community.

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## Take Back Control - Introducing Veilid

*Bill Sempf*

Veilid is an open-source, peer-to-peer, mobile-first, networked application framework. It allows developers to build private, distributed, scalable social applications containing and sharing a user's personal content without data collection by third parties being of concern. Built by Cult of the Dead Cow, a famous hacking collective, it was released at DEFCON 31. You'll learn how Veilid works and how to develop applications using the framework. There will be some technical details, and lots of code in various languages. You'll walk in wondering what the heck I'm talking about, and leave inspired to give your users the ability to keep third party trackers out of their stuff.

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## Aerospace Engineering for Computer Scientists

*Ilyana Smith*

It IS rocket science! What does the International Space station have to do with basic programming principles? What considerations need to be taken into account when computers go to space? How does putting people in space make systems more complicated? 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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## Scaling your .NET app with Azure

*Callum Whyte*

You've made it big time, and your web app just can't handle the traffic... Where do you even start with scaling in Azure?

This session will cover all there is to know about efficiently scaling an app on Azure; from scaling on App Service, to hosting in containers on AKS, and all the DevOps magic in between.

Lets start by exploring the auto-scaling options available in Azure App Service, using Application Insights to guide the thresholds we set and monitor how our app performs. We'll see the impact that external dependencies (database, storage) has on scaling, and smart ways to mitigate any challenges that arise.

As our scale grows, so will our costs... We'll share our tips for cost effective scaling, taking a look at the options Azure makes available at our fingertips – through containerized apps + AKS, and serverless products like Azure SQL Serverless.

Finally, we'll show how to configure a deployment pipeline in Azure DevOps that glues all of these solutions together.

## General Session Day 1 4:45 PM

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### From Good to Great: How API Gateways Can Level-Up Your Software

*Daniel Mikusa*

In today's digital landscape, APIs are an essential part of most software offerings, and from financial services to a Chuck Norris joke generator, all APIs have similar pain points.

- How do we secure our APIs?
- How do we monitor our APIs?
- How do we authenticate and authorize users?
- How can we rate limit users?
- How do we scale our API?
- How do we evolve our API?
- How can we provide variations or client-targeted versions of our APIs?

The answer to these questions and more is API Gateways!

In this session, we'll explore API Gateways and the many benefits they provide. To do that, we'll implement an API Gateway using Spring Cloud Gateway, which is a fast, scalable, and open-source API Gateway written in Java, and demonstrate how it can help to level up your software.

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## **Alerts Don't Suck. YOUR Alerts Suck.**

*Leon Adato*

The SRE handbook defines alerts as "A notification intended to be read by a human and that is pushed to a system such as a bug or ticket queue, an email alias, or a pager. Respectively, these alerts are classified as tickets, email alerts, and pages." and I just want to scream. Not because the definition is wrong, but because it's not enough.

First off, if you go from that definition, many devs think (and rightly so) "Why bother?". Who wants an unscheduled interruption when there's no intrinsic value. Because, you might notice, the value of the alert is completely missing.

Second, and conversely, many practitioners see alerting as the entire reason for monitoring and observability. If you can't get an alert when something is going wrong, why bother monitoring at all?

But those of us who revel in the I.T. sub-discipline of monitoring and observability know that alerts are only one piece of the puzzle. Drawing on decades of experience designing, building, implementing, and supporting solutions from a range of vendors in a variety of settings, I'll expose the places where alerting often goes wrong, how to avoid common pitfalls, and how to dig yourself out if you're already neck-deep.

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## **The Hazards of Sitting: An Osteopath's Approach to Preventing Work-Related Injury.**

*Michele Parsley-Lanning D.O.*

My training as an Osteopathic Physician prepared me to counsel my patients about injury and disease prevention. However, I did not realize the full impact of spending a majority of my time sitting at a desk would have on my overall movement and flexibility.

In this talk, I will provide background education on the most common injuries software engineers are at risk to develop and how I try to prevent these by implementing a few simple measures daily at



work.

Some of the measures include proper chair/desk/monitor adjustment, workspace setup, stretching routine that can be easily implemented at your desk and much more.

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## **My Pi in the Sky - Running MySQL on a Raspberry Pi and Replicating Data to the Cloud**

*Scott Stroz*

Did you know that you can run MySQL on a Raspberry Pi and replicate the data to the cloud?

In this session, we will cover how to install MySQL on a Raspberry Pi, give a brief overview of how to store data on this MySQL instance, demonstrate an application that can visualize that data, and finally, how you can replicate that data to a MySQL instance running in the cloud.

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## **What Does Security Look Like When Building AI?**

*Robert Herbig*

Anyone who is working with AI or considering doing so should care about security. When considering building an AI-powered system or product, the traditional attack surfaces and mitigations still apply. However, new attack surfaces can be present depending on the specific AI approaches used. In addition, due to the typically higher level of automation in AI systems, they can do more harm if they are compromised.

In this talk, we'll discuss how AI has the same attack vectors as traditional software, and what those attacks look like. We'll also discuss new attacks that are specific to generative AI (e.g. LLMs like ChatGPT), machine learning & computer vision systems, and optimization techniques. For each type of attack, we'll point out how they can be thwarted, or at least mitigated.

Previous experience with AI and security are not required to benefit from the session. Attendees will see tools & techniques to help write more secure software, AI-enabled or not. They will walk away with a better understanding of AI-specific attack vectors and their mitigations. They will be equipped to find security education resources in the future.

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## **Building accessible Android apps using Jetpack Compose**

*Devanshu Chandra*

Recently Android introduced a new technique of developing Android user interface called Jetpack Compose. Using Kotlin APIs Jetpack Compose provides a faster and easier way to develop Android UI and has inbuilt support for Material Design, Dark Theme, Animation and much more. In this session we will be talking about

How Android's Accessibility Service handles composables.

How to make Android Applications written in Jetpack Compose accessible using simple techniques and APIs.

How to create Custom Accessibility Actions for complex user interfaces.

When and when not to use Custom Accessibility actions.

We will be looking at certain examples of composables like Switch, Button, Text Input, Checkbox, etc.

and try to understand what makes them accessible and what can make them inaccessible.

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## AI for Highway Maintenance

*Jordan Thayer*

Software touches every aspect of our lives, and no where is that clearer than in the automotive industry. With the recent surge to AI for self driving cars, we lose sight of adaptive cruise control, anti-lock breaks, and in-cab media centers that all require software to operate.

However, did you realize that software plays a fundamental role in the streets you drive on? This talk is a post-mortem of a prototype system we built for optimizing the use of municipal funds for highway maintenance in the state of Indiana. While the optimizer is a central piece of the system, it wasn't the whole system, or even the most challenging problem!

In this talk, we'll cover:

- \* The general problem of highway maintenance
- \* How users acceptance and understanding may be a more important metric than pure cost optimization
- \* How to build AI in an agile manner
- \* How AI was merely a part of a much larger system
- \* What changes when your software has to change hearts and minds as well as accomplish a technical task?

## 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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### State of Mobile Development

*Sam Basu*

It's 2024. Thankfully, developers have a lot of choice in how to build for mobile form factors. Mobile strategy can often be an afterthought – in reality, it needs to be driven by type of app, audience, platform reach, developer expertise & need for code reuse.

Is Mobile web still an option? Have PWAs matured enough to prove the web as a distribution medium? What key factors demand native mobile apps for iOS/Android/Windows? Can you target dual screen devices or share code with wearables? Developers also want to leverage preferred technology stacks - .NET or JavaScript. .NET MAUI sounds like the next-generation .NET cross-platform story – is it truly native & does it allow bringing in web technologies? How do NativeScript & React Native fare for JS Native apps? How do Blazor & JS Spa apps play in the mobile space? What could developers achieve with Flutter or Uno Platform or Avalonia?

The answer to the correct mobile strategy is – it depends. Developers today can build true modern cross-platform mobile apps from single code base, with easy platform API access & matured tooling everywhere. The choice of technology stack should not matter as much. Design & UX are of utmost importance though. Let's recap options, glimpse into the future and equip ourselves to build amazing mobile apps.

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## **Writing Secure APIs - A Look at the OWASP 2023 API Top 10 List**

*Darylynn Ross*

OWASP published a new API top 10 list in July of 2023. There are some old favorites hanging around (I'm looking at you Authentication) and some new comers like Server Side Request Forgery and Unrestricted Access to Sensitive Business Flows. This session will cover the new top 10 list and take a look at why each of these flaws is a real world problem.

Get ready to dig into API authorization and authentication gotchas, API inventory challenges and resource management strategies. Anyone who is designing, developing, testing or securing APIs will want to join the discussion and learn how to defend against the most common issues facing engineers today in API development.

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## **Caffeinate Your Queries: Brew Up Faster SQL with Tuning**

*Tristan Chiappisi*

In this session, embark on an engaging exploration as we unravel the mysteries of query tuning. From deciphering sluggish queries to unleashing their full potential, we will explore advanced techniques for optimizing SQL performance. Discover the art of indexing, rewriting queries for efficiency, leveraging execution plans, and unearthing hidden bottlenecks. Whether you're a seasoned developer or SQL enthusiast, you'll leave armed with the skills to transform your queries from coffee-break slow to lightning-fast.

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## **The Vue.js Power Hour: Building a Dynamic Frontend in < 60 Minutes**

*Tori Brenneison*

Are you a beginner developer who is curious about JS component frameworks? A backend developer who wants to add a frontend skill to their toolbox? A data analyst looking for a quick way to build views? Have we got a deal for you!

Vue.js is a relatively straightforward and increasingly popular JavaScript component framework. It has become a developer favorite for being easy to use, lightning fast, highly flexible, and quick to learn.

Join a professional development instructor as they cover the absolute bare-bones basics of Vue... in

under an hour. We'll go from a static page to a dynamic frontend by covering components, directives, and data binding.

This session is perfect for beginner and intermediate developers who are looking to learn -just enough- Vue to be dangerous. Don't miss out on this opportunity to start building with Vue.js in only 60 minutes (or less)!

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## Reaping the Benefits of Ritual and Routine

*Arthur Doler*

Software is as close as humans are ever going to come to actual magic. You type arcane incantations using cryptic symbols, crafting messages incomprehensible to most mortals and communicating them to vast, unknowable systems, to be executed blindly by idiot machine gods who follow our instructions to the very character. We're an elite class of human, chosen through intense courses of secluded study, or simply by the winds of chance, to engage with this symbolic and mystic realm. But while we're comparing ourselves to wizards, witches, and sorcerers, we're actually leaving one of their most powerful tools on the table: rituals.

Let's learn what our brain does when we do an activity repeatedly, with other humans, or simply by ourselves. You'll learn the difference between a ritual and a routine, you'll discover why ritual practices are an important part of being a group, and you'll get an overview of when, where, and how to employ these powerful tools. You'll complete your magical arsenal, and you'll never look at a retrospective the same way again.

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## Can We Learn to Manage Uncertainty? Probably!

*Robert Herbig*

When we're asked when something will be done, it's tempting to answer the question. "It'll be done on March 32nd" or "it'll take 182.5 days" or "we need 15 sprints". It doesn't matter if that answer is the best-case, average, or worst-case scenario.

The answer is fundamentally wrong because using a single value hides the fact that what we really meant was a distribution of possible dates, durations, or outcomes. The exact value is uncertain. Development may be faster or slower than we thought. What if the tech lead wins the lottery and retires? What if a global pandemic forces us to change the way we work?

While we can't control any of those factors, we can be mindful of their existence and communicate more clearly. In this talk we will introduce "bet" language, which makes uncertainty and luck an explicit part of the conversation. This mindset helps us accurately assess risks, pick the right risks to embrace, and avoid analysis paralysis. It also helps us learn in an uncertain world, where even if we make good decisions, we may experience bad outcomes (and vice versa!).

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## Projectional Code Editors: Past, Present, and Future

*Jonathan Arnett*

Have you ever felt that your humble text editor could be—should be—so much more? After all, the software we're writing is much more than text! Programming languages mandate rigid structures for textual code, for instance that (in some languages) the conditional for an "if" must be in parentheses,

but it seems that our editors are woefully unaware of these rules. While modern editors can list the methods on an object after you type a period, they don't seem to know that after "if" comes "then"! If only we had "smarter" editors that could take some of the drudgery out of writing code, we may be able to achieve greater productivity.

Luckily for us, developers have been thinking about this for quite some time. In fact, editors that operate on programs' abstract syntax trees (ASTs) instead of textual code, known as "projectional editors," have been around since the 1980s! Unfortunately for us, however, they have always been fairly niche and had several significant drawbacks. Together we'll explore the complicated history of these editors, the current state-of-the-art, and the prospects for a more efficient future!

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## Testing Mayhem on the Basic Side

*Jeanette Kalb*

Did you ever wonder how a QA managed to find something you didn't on that last feature card? Hint, it's not magic, but there is a lot of mayhem. Your quality professionals need your help to help them test better. This talk will provide insight as to what your QA person goes through when deciding what to test, where to test, and how to test any given piece of work. You can use it to do better dev testing on the side before it goes into that Ready For QA column.

This is an entry-level talk designed for developers and new QAs that introduces some common testing concepts and explains some of the reasoning behind QA methodology. There's also a short segment on the three basic types of work that development teams tend to get and how to test them. Important questions covered are, in order, why, what, where, and how to test.

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## Accelerating Accessible Software Development for People with Motor Disabilities

*Yvette Jenny Menase*

In today's digital world, many people with motor disabilities face barriers when accessing and using software due to their assistive device & physical limitations. In this talk, we will discuss strategies and best practices for designing software that is accessible to people with motor disabilities.

The talk will start with an overview of the types of motor disabilities that can affect a person's ability to use software, including SMA, cerebral palsy, muscular dystrophy, spinal cord injuries, and more.

We will cover the types of motor disabilities that can affect a person's ability to use software, the design principles and techniques for making software more accessible, testing strategies and tools, and real-world examples of software that has been designed and tested for accessibility.

Attendees will leave with actionable takeaways that can be applied to their own software development processes to create software that is more inclusive and accessible to everyone.

## General Session Day 2 9:45 AM

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**How to answer "When will it be done?" using probabilistic forecasting.**

*Chris Shinkle*

"When will it be done?" How often have you been asked that question? That question strikes fear or frustration in most people. It often results in throwing up your hands in frustration or tossing out a wild guess. Surely there's a better way?

Forget story points, t-shirt sizing, historical averages. Have you considered building a simple forecasting model—one that provides a range of possible outcomes with confidence levels?

Whether you're a developer, project manager, or scrum master, it's important we can answer this question confidently in a way that provides clarity and predictability. We can do that by applying techniques like Monte Carlo simulation and continuous forecasting.

In this talk, we'll explore those practices and discuss how you can leverage them no matter your role. I'll share a few models and spreadsheets we use with our clients including examples. We'll walk through how to use these to support better communication and consider what-if scenarios. You'll leave with a practical set of tools you can start using tomorrow!

Answering the question "When will it be done?" will no longer create frustration or fear like it once did.

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## **Platform as a Product: the future of Agile and DevOps**

*Brad Nelson*

Cross-functional teams and full-stack developers have become the expectation in today's highest-performing teams. However, as technology needs become more complex and solutions begin to scale, it becomes increasingly difficult for software engineers to balance expertise across all layers of the stack, operations, security, development tools, etc. This leads to an increased cognitive load for your engineers, resulting in lower performance, longer development times, decreased quality, and, ultimately, developer burnout. In this talk, we'll explore how applying Product Thinking to Platform Engineering can reduce this burden on your development teams while preventing organizational bottlenecks. Join this talk to learn what a platform is, what the product mindset is, and how to architect for enterprise flow.

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## **Imposters! faking endpoints over-the-wire**

*Bob Crowley*

Faking remote services can be very useful. Maybe you need to build against a service that isn't created yet, mock micro service dependencies, test against an API that only has a production instance or validate a large number of data scenarios that would be difficult to achieve with a "real" instance.

For these reasons and more, Mountebank is the best free, cross platform tool for the job. With it, you can spin up your imposter services and have them respond over-the-wire, just like the real thing. These imposter endpoints can be instantiated from a configuration file, on the fly based on business logic of an executing test, from any tool that can make a POST or any combination of them.

It works by exposing stubs filtered by predicates that dynamically match a request with a response based on properties you define in the URL, headers, body content, etc. It can even be configured to respond in multiple ways per predicate in a round-robin fashion.

And its not just for HTTP. Mountebank supports TCP, SMTP and other community contributed

protocols.

This session shows you how easy it is to harness the power of Mountebank to create and use imposters. We demonstrate starting the tool, spinning up imposters via code or http tool (like postman), employing security, viewing the logs, capturing and validating responses and tearing down when done.

By the end of this session you will have the knowledge to begin leveraging imposters in your testing workflow to gain more confidence in your software.

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## **Clean Architecture with ASP.NET Core 8**

*Steve Smith*

Clean Architecture is a very popular approach for DDD and Microservices, and for good reason. It's not a new approach, and went by other names in the past (e.g. Onion, Hexagonal, Ports-and-Adapters). One of the main benefits of the approach is its focus on business logic and its reduction in coupling to external infrastructure concerns (databases, web APIs, etc.)

In this session, you'll learn the principles behind Clean Architecture and how to apply it to real world apps built with the latest version of ASP.NET Core. You'll leave with a solution template you can use to get started on new projects with a working Clean Architecture solution in minutes!

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## **Building Event Driven User Interfaces**

*Sam Ferree*

In the realm of modern software development, creating dynamic and responsive user interfaces is essential to delivering engaging user experiences. Event-driven architectures have emerged as a powerful paradigm to achieve this goal. In this enlightening talk, we will delve into the world of event-driven user interfaces, exploring how this approach revolutionizes the way we build interactive software.

By leveraging event-driven paradigms, developers can create highly modular and loosely coupled systems that are more resilient to change. We will explore event-driven design patterns, such as event sourcing, pub-sub, and reactive programming, that enable seamless communication and collaboration between different components of an application.

Examples will be in C# using a Blazor Web Application, but the concepts are fundamental and transferrable to many front-end frameworks and languages.

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## **Expect the Unexpected: Handling Exceptions in Enterprise Applications**

*Kito Mann*

One of the most common reasons for software defects is poor exception handling. The more complex the application, the more difficult it can be to track down the root cause of a bug. An exception at the service or database layer may manifest itself as unpredictable behavior at the user interface level. Simple coding errors or unexpected inputs may result in unnecessary and confusing error messages. The net result is an application that doesn't meet the user's expectations. These types of issues can be avoided by handling exceptions properly. In this session, we'll look at examples of what happens

when exceptions aren't handled, and how you can avoid unexpected defects by following a few key principles and using some discipline. We'll also examine the importance of establishing logging standards, and look at how to properly configure error pages and use the error handling facilities in back-end Java services and web apps.

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## **Understanding CSS Layout: the concepts underlying your (least) favorite language.**

*Kilian Valkhof*

Have you ever felt perplexed by CSS, struggling to understand why the browser put the element where it did, and why it didn't just follow the clear instructions you wrote? Do you think CSS is hard to work with?

By getting a better understanding of the concepts that underlie the language, you'll learn to "see the matrix". There's normal flow, stacking context, offset parents... how do they interact with grid and flex layouts? This talk unveils those concepts in a fun and engaging way.

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## **Building Better Teams Through Play**

*Jenny Bramble*

Teams work incredibly hard to drive software and processes forward. Sometimes we neglect the emotional side of our hard work, leaving teams brittle and less able to adapt and bend. How do we release tension and form the strong bonds that a good team needs to be successful as well as honing some of our hard won skills?

As children, we form strong bonds during recess or at play dates. As adults, we lose this sense of companionship and playfulness. Bring it back to your team with targeted fun activities that create a sense of mindfulness, improve skills, and are just downright enjoyable. Team building is the most difficult aspect of leadership—peer or otherwise. One of the best ways to facilitate team building is play!

I will present a method for skills and team building outside of the norm in play time. I will show how events can be arranged, when to do them, and what the benefits are for play time—including stronger teams that work better together due to their powerful relationships between team members.

We will also discuss different games such as TestSphere Arena, TestSphere Bingo, "Murder" Mystery, Quality Jenga, The Planning Game, Telephone, and more! She will tie each of these games back to an element of your job.

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## **Harnessing the Power of Asynchronous Messaging and Eventing for Distributed Systems at Scale**

*Eric Boyd*

Distributed applications, microservices solutions and systems at scale depend on In today's era of distributed applications, microservices, and systems at scale, the key to achieving agility, resilience, and scalability lies in mastering the art of asynchronous messaging and eventing.



In this session I will delve deep into the world of asynchronous messaging and event-driven architectures. We will explore messaging design patterns such as competing consumers, pub/sub, event sourcing, command query responsibility segregation (CQRS), and more. You will gain an understanding of how these patterns can improve your system design and development. We will explore the benefits of decoupled, event-driven systems and how they contribute to fault tolerance, scalability, and adaptability in complex ecosystems.

I will demonstrate implementing the messaging and eventing patterns showing you how to put these concepts into practice using platforms like Azure Service Bus, Event Hubs, and Event Grid. You'll learn hands-on techniques for building robust, event-driven solutions that can handle the demands of modern, distributed applications.

Lastly, I will guide you through real-world use cases and practical insights, equipping you with the knowledge and tools to harness asynchronous messaging.

Whether you are an experienced developer looking to expand your skill set or an architect seeking to optimize your system's design, this session promises valuable insights and practical takeaways to help you create resilient, scalable, and responsive systems. messaging and eventing to achieve their goals.

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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 11:00 AM**

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### **Networking for Introverts: Build, Maintain, and Use Networks Without Being Creepy**

*Brian MacDonald*

You've heard that having a professional network is important for career growth, for learning about your industry, and to help out in the event of a layoff. But how do you go about building one from scratch? Taking a transactional, goal-oriented approach may be good engineering design, but it tends to fall apart when your network is made of humans with squishy feelings.

In this session, you'll learn how to engage with people, even when it's scary. You'll discover the value of community beyond short-term results. You'll get advice on altruistic participation, and see why that works in the long run. And you'll find out how to ask for help appropriately when you need it.

Attendees will learn:

- \* What a network is for, and what it isn't for
  - \* How to break the transactional mindset around networking
  - \* How to make new connections for yourself and others
  - \* How to contribute to a community before asking favors of it
  - \* How to engage your network when you need help
- 

## **The Right Database for the Right Job**

*Nuri Halperin*

Picking a database for your particular purpose is hard, and vendors don't make it easier. So which database is right for which workload?

This session breaks down the decision factors into characteristics that let you decide and reason with them on even ground.

We will examine the underlying technology and core strength of each database. Is it distributed I/O? Is it in-memory? Does it rely on indexing? Columnar? Row-Oriented? Document? With this understanding, we can match our expected workloads to the most appropriate technology.

With this knowledge, you will be able to:

- Identify core capabilities of major databases.
  - Fit your workload needs to the right DB engine.
  - Cut through the hype.
- 

## **Practical Auth(entication|orization) for Developers**

*Seth Petry-Johnson*

It's never been easier to launch a website or expose services over HTTP. It's also never been easier to make rookie mistakes in the authentication of those services.

This session is designed for the average developer/architect that's struggling to make sense of modern authentication options. You'll learn the differences between OAuth, API Keys, HMAC, JSON Web Tokens (JWT), SAML, and more.

Don't worry if those things sound foreign; they'll be explained in a clear, practical way so that you can choose the appropriate tool for your needs without making rookie mistakes.

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## **Beyond Request/Response: Why and how we should change the way we build web applications**

*Chris Nelson*

As web developers, we've been building web applications the same way for 25 years. We send a request, and we receive a response. We might get a whole page back, or we might get some data to

render, but the common thread for almost every web application that has ever been built is the request/response cycle. What if we didn't have to do it this way? What kind possibilities would open up to us?

In this session, we'll take a simple, existing design pattern that you are probably already familiar with even if you don't know it by name: the Event/State Reducer pattern. You've already used it if you've worked with Redux or Elm. We are going to stretch this pattern just a little: we will publish events from the client, use reducer functions on the server to compute our new state, and subscribe to these state changes on the client.

We'll explore this idea with several code examples that gradually increase in complexity. We'll see how building collaborative and real-time applications becomes natural and straightforward. We'll also see how to combine statically generated websites with interactive applications in a way that was difficult or impossible before. You can expect to come away with practical but hopefully mind expanding new approaches to building your next application.

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## Async Masterclass

*Stephen Cleary*

You've mastered `async` and `await`, but you find you need more powerful tools. This is how to build them.

Tired of reading articles about `async` that just don't go deep enough? Here you go. This is the `async` masterclass. There are no breakfast food analogies here. Except bacon, because bacon is awesome. Bacon.

Forget `Task`. We'll be learning `ValueTask`. And `IAsyncDisposable`. And `AsyncLocal < T >`. Oh, and asynchronous queues - time to learn some Channels. Let's throw in asynchronous synchronization primitives. And I mean building those - seeing how they actually work - not just using them. This ain't your momma's `SemaphoreSlim`; it's time to build your \*own\* asynchronous "pause" primitive with `TaskCompletionSource < T >`. Speaking of TCS, we'll also cover the dictionary completion technique. Let's build our own `AsyncLazy < T >`, too. Maybe we'll even tackle asynchronous caching and the challenges that come with that (spoiler: we will).

It sounds like a random assortment of topics, but each of these skills are valuable as soon as you move from basic `async/await` into real-world complexity. By the end of this masterclass, you'll be equipped to take your `async` to the next level!

Mmm... bacon...

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## Developing kids in tech - a retrospective

*Bill Sempf*

Your humble speaker has spent the last eighteen years devising, researching, and implementing ways to get kids into tech. Between Scouting, advising friends, KidzMash, and my own Thing 1 and Thing 2, I have accumulated a rather dramatic list of ideas that do and do not work. Programming, social networking, getting through COVID, gaming, hacking, and surviving the world today have all been implemented and tested. When I start the talk, you'll likely have a few questions about my sanity. When I have completed the talk, you will have a toolbox of new things to try - and maybe even a new

attitude about kids and tech. I look forward to your joining me, and perhaps my Things, on a retrospective of our wild adventure. I mean after an eighteen year sprint, I think it is time for a retrospective, don't you?

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## **CQRS with Event Sourcing using the “Crittter Stack”**

*Jeremy Miller*

Do you have a system where you think would be a good fit for a CQRS architecture that also uses Event Sourcing for at least part of its persistence strategy? Are you intimidated by the potential complexity of that kind of approach?

Fear not, using a combination of the Postgresql-backed Marten (<https://martendb.io>) library for event sourcing and its newer friend Wolverine (<https://wolverine.netlify.app>) for command handling and asynchronous messaging, I'll show you how you can quickly get started with both CQRS and Event Sourcing. Once we get past the quick start, I'll show you how the Crittter Stack's unique approach to the "Decider" pattern will help you create robust command handlers with very little code ceremony while still enjoying easy testability.

Moving beyond basic command handling, I'll show you how to reliably subscribe to and publish the events or other messages created by your command handlers through Wolverine's durable outbox and direct subscriptions to Marten's event storage.

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## **Failing Forward**

*Jeremy Jarrell*

The first iteration of a product never succeeds. Nor does the second, the tenth, or even the 20th. Instead, most of the successful products we know and love today were abject failures at the start...but then evolved to get better.

Chances are your own product might be heading toward failure right now. And while you might be experiencing some of the same failure patterns as early versions of Netflix, YouTube, and Post-Its, you may not have the luxury of a big budget or long runway to pull your product back from the brink.

Luckily, there are cheap and easy-to-implement techniques that you can start using immediately that can help you iterate quickly enough to find your product's path to success before it's too late. In this session, you'll learn how to use techniques from Lean Customer Development and Lean Startup to quickly guide your product through multiple iterations toward finding product-market fit.

By the end of this session, you'll have everything you need to set up a Lean Customer Development framework in your own company without having to ask for additional budget or resources. And you'll finally be ready to lead your product out of the pits of failure and into the daybreak of success.

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## **Watch this! Building a Health app for Wear OS**

*Sierra OBryan*

One of the most popular answers for a favorite smart watch feature is to monitor your health. From steps to heart rate to exercise to sleep, smart watches do it all and with Jetpack Compose and Health Services, we can build our own app for Wear OS!

During this talk, we'll explore building for this tiny screen using Compose for Wear OS, a declarative framework for creating watch interfaces quickly and easily optimized for the screen shape and size, and the Health Services APIs, an intermediary to the various sensors and algorithms on the the watch that provide data related to activity, exercise, and health. With these tools, we'll be able to create a beautiful and efficient wear app that can help you track your health goals!

## General Session Day 2 12:15 PM

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### **Blood, Sweat, & Code Reviews**

*David Giard*

Code Reviews can sometime be painful and time-consuming, but they are an important part of delivering quality software. A Code Review provides an opportunity to share knowledge, improve code and catch potential problems before they go to production. This can be a positive experience or a negative experience.

In this session, I will discuss the importance of Code Reviews and show some ways you can make your code reviews more productive, enjoyable, and successful.

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### **Multithreaded Income: How Developers Can Achieve Parallel Success**

*Kevin Griffin*

In an unpredictable tech industry, job security is fragile. How can developers harness their unique skills to create a diversified, resilient professional life? This talk presents the concept of "Multithreaded Income," a strategic approach to building parallel income streams inspired by the principles of multithreading in software development.

What You'll Learn:

- \* Moonlighting & Side Gigs: Leverage your skills to create supplementary income streams without compromising your primary role.
- \* Course Building & Book Writing: Turn your expertise into educational content for additional revenue.
- \* Ethical Balancing & Time Management: Strategies for maintaining professional ethics and personal well-being across multiple commitments.
- \* Path to Financial Freedom: A roadmap for constructing a diverse income portfolio resilient to the tech industry's uncertainties.

Join us to explore a new paradigm for financial stability in your career, aligning technology's best practices with innovative career strategies.

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### **Fresh Hot CSS Features!**

*Alex Riviere*

Do you use a CSS Framework like bootstrap? Or maybe you've been coasting for a few years on your current knowledge of CSS. You've maybe seen something called CSS Grid and wondered what it

was... Maybe you have never seen ``var()`` used before.

Let's discuss the latest newest hottest big features in CSS from the last few years, and get you up to speed on what a browser engine is capable of!

We'll cover the following topics:

- CSS Grid
- Custom Properties
- the ``:has()`` selector
- CSS Layers
- Container Queries

... And more!

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## All your secrets are belong to us

*Callum Whyte*

Admit it: we've all checked in an API key or password to a repo at some point... Oops... No one wants their secrets to accidentally leak, so this session is your essential refresher on secret management (and mismanagement!) for your applications and beyond!

Let's explore the range of methods and benefits of securely handling secrets for local development: from features baked into your IDE (Visual Studio, Rider), to secret management services (Azure KeyVault, AWS / GCP Secret Manager), and even loading them from your password manager of choice (i.e. 1Password). We'll progress to look at accessing secrets as part of a CI/CD pipeline, or loading them into infrastructure at runtime, to eliminate hard-coded secrets from every aspect of our projects.

What about when things inevitably go slightly wrong...?

We will follow the stories of a few real world breaches: what went wrong, how we responded, the lessons we learnt, and how that feeds back into our processes.

I will discuss the processes we have implemented with our clients to manage secrets on a large scale – including following a least trust approach, methods for revoking and cycling credentials, and appropriately mapping our dependencies so we can measure the impact of a change.

Finally, we will look at the ways automation can help, including configuring automatic secret detection tools (GitHub and Azure DevOps) and CodeQL checks in our pipelines.

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## .NET on AWS: Wait, you can do that?

*Brad Knowles*

.NET on AWS: Wait, you can do that?

That's right, .NET is a first-class citizen on AWS, meaning you can run any .NET workload in your organization. Are you currently using AWS and need help understanding the .NET landscape? Are you comparing cloud providers and looking to understand what AWS can offer? Whether it's an older .NET Framework 3.5 web app or the newest .NET 8 microservice, AWS has a service that can run it.

You'll see demonstrations such as:

- \* .NET apps running in EC2 virtual machines
- \* ElasticBeanstalk hosting an IIS website
- \* Lambda functions written in C#
- \* .NET container workloads in Elastic Container Service

You'll even see how to use C# to provision the necessary infrastructure! You'll leave this session ready to run your .NET code in AWS first thing on Monday.

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## **Dream Teams: Hiring (and Keeping) the Right People**

*Michelle Smith*

Everyone says that “your people are your most important asset.” But how do you find the RIGHT people? And once you have them, how do you keep them? In this entertaining session, we'll turn the traditional hiring process on its head and share a new perspective on how to identify the right people for YOUR organization. You'll also learn important lessons on what really matters to your employees (spoiler – it's probably not what you think) and how to keep people engaged for the long term. Hiring managers are encouraged to attend, but anyone who works on a team will find practical tips on how to work successfully with other human beings. Whether you work on a remote team or are trying to fill up empty desks in your office, you CAN create your own dream team!

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## **Delivery & Execution Across Multiple Teams with Azure Dev Ops**

*Krista Campbell*

Azure Dev Ops started as a tool specifically for software development teams. It's only been a few years since it was rebranded from Team Foundation Services/Server to Azure Dev Ops. It has always been a great tool for autonomous development teams to deliver great software but fallen flat in scenarios with dependencies across multiple teams.

However, the Azure Dev Ops of today has outgrown its team-centric adolescence to be able to support these complex challenges faced by many organizations. In this talk, we will cover several techniques and features of Azure Dev Ops which simplify the complexity of delivery and execution across multiple teams and organizations.

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## **Best of Both Worlds: Apache Pulsar and Apache Kafka**

*Mary Grygleski*

Which streaming technology is right for me? Do I need to use Apache Pulsar or do I choose Apache Kafka?

That is mostly the question, but did you also know that you can combine them?

In this session we will show how to use best of both worlds. Let's compare both architectures and Java Client Implementations and decide what's best for you!

Do you pick the battle? Or are you making allies?

It's up to you!

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## **From Zero to Hero: Building and Shipping Your First JavaScript Library**

*Mike Hartington*

If you're a developer, chances you've used a third-party library for various parts of your projects. Third-party libraries offer so much functionality that they are essential to most teams success. So, how do you make your own library? How do you go from your teams "utils" folder, to a package on npm that can be installed across your organization? In this talk, we will look at how to publish a library, set it up to follow best practices, and ensure you maintain code quality.

## **General Session Day 2 2:45 PM**

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### **Creative Problem Solving**

*Eric Potter*

You're a developer. Solving problems is a big part of what you do. But how can you learn to think more clearly and more creatively about the problems you are solving? In this session, you will learn about the cognitive science of creative thinking. You will also learn some practical things you can do to solve problems individually or as a team.

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### **Morality and AI: How do I use this power responsibly?**

*Cameron Vetter*

As artificial intelligence (AI) continues to advance, it becomes increasingly important to address the ethical implications and moral considerations surrounding its use. In this talk, we will explore the intersection of morality and AI, focusing on how individuals and organizations can wield this power responsibly.

AI, including language models like GPT-3 and GPT-4, possesses immense potential to shape our society and influence decision-making processes. However, with great power comes great responsibility. We will delve into the ethical challenges and moral dilemmas that arise when utilizing AI, particularly in the context of language models.

Join us as we discuss the principles and frameworks that can guide responsible AI usage. We will explore topics such as fairness, transparency, accountability, and privacy. By understanding these principles, individuals and organizations can ensure that their AI applications align with ethical standards and societal values.

Furthermore, we will examine the importance of diverse and inclusive data in training AI models. We will address the risks of bias and discrimination and discuss strategies to mitigate these issues, promoting fairness and equity in AI systems.

Through real-world case studies and examples, we will highlight the potential consequences of irresponsible AI use and the importance of proactive ethical considerations.

Join us in this talk to gain a deeper understanding of the moral dimensions of AI and how to navigate them responsibly. Discover how to leverage AI, including language models, in a manner that aligns



with ethical principles and contributes positively to society. Together, let's harness the power of AI while upholding our moral obligations.

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## **The Micro-Frontend Playbook**

*Marko Skugor*

Micro-frontend architecture can provide a lot of great benefits to team autonomy and can play a crucial role in enabling technical and organizational scalability. At the same time, it also comes with a lot of potential pitfalls and anti-patterns to avoid. In this talk we'll learn how to apply Domain Driven Design concepts to the front-end of an application as well as several techniques for splitting up a monolithic web application into smaller independently deployable parts. From composition, caching, routing, state management, authentication & communication patterns all the way to test automation strategy, we'll go over some practical approaches and some "gotchas" to avoid if you are considering micro-frontend architecture for your organization.

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## **The Developer Relations Playbook: How to build bridges by putting people first**

*Dan Vega*

Are you passionate about technology and love engaging with communities? Ever wondered how you could turn these interests into a fulfilling career? Look no further! "The Developer Relations Playbook: How to Build Bridges by Putting People First" is your comprehensive guide to becoming a Developer Advocate.

In this talk, we'll demystify Developer Advocacy, a role that sits at the intersection of technology, community engagement, and education. You'll learn what's expected of you in this role, from creating technical content and tutorials to engaging with developer communities and influencing product strategy. Most importantly, we'll discuss the art of building bridges between developers, companies, and communities by putting people first.

Don't miss this opportunity to discover how you can contribute to the tech world in a unique and impactful way. Join us and take the first step towards a rewarding career in Developer Relations!

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## **Protocol Design**

*Stephen Cleary*

This language-agnostic talk will examine the design of application protocols, with a focus on TCP/IP.

This talk is part history and part practical implementation. If you have a need to design a TCP/IP protocol, then this talk will cover everything you need. Most bugs in TCP/IP applications are actually misunderstandings about TCP/IP itself, so this talk highlights the parts of TCP/IP that are most problematic with practical advice about avoiding pitfalls with your application protocol.

We'll also be covering several mistakes from history as we go along, most specifically HTTP and the improvements it made with HTTP/1.1, HTTP/2, and the new HTTP/3 based on QUIC. Spoiler alert: QUIC is the future for almost all protocols; we'll cover how QUIC compares to TCP/IP specifically in terms of application protocol design. Today TCP/IP is more available (in terms of APIs), but QUIC is

not that far off, and this talk will cover application protocol design considerations for both.

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## **Teaching Skills For Technical Experts**

*Tori Brenneison*

Bad news: tech folks are not always the most compelling teachers. (It's not our fault; we're used to talking to computers, not people!)

Good news: teaching people is a learnable skill.

Best news: this talk is a 45-minute primer on educational philosophy, curriculum development, and content delivery for technical experts.

We'll cover learning styles, effective communication, and audience management—AKA, how to “read the room”... even if the room is a video conference! That's right; post-2020, this talk has been updated to include information on hybrid and remote learning. Participants will leave ready to share their expertise with the world via more effective meetings, conference talks, workshops, and mentoring sessions... face-to-face, or camera-to-camera.

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## **Unlocking Inclusive Potential: Screen Reader Integration for Hybrid Mobile Apps**

*Chris DeMars*

Join us as we uncover the untapped potential of screen reader integration in hybrid mobile apps. This talk will delve into the technical aspects of integrating screen reader functionality, discussing the challenges and opportunities that arise during development. Discover effective techniques for implementing accessible features, such as proper labeling of interactive elements, optimizing focus management, and leveraging ARIA roles. By attending this session, you will gain practical insights and actionable strategies to create hybrid mobile apps that prioritize inclusivity and accessibility.

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

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### **Visual Storytelling: How to be a Superhuman Communicator**

*David Neal*

Who says communication has to be dry, dull, and boring? Simple, hand-drawn illustrations are a compelling and fun way to engage, inform, and win your audience of readers and viewers!

Drawing is a skill that anyone can learn. There's no such thing as "bad" art! You can make a huge impact with some fundamentals and practice, and have fun doing it!

Drawing has become an essential part of everything I do. I would love to share my bag of tips and tricks I've learned to create illustrations for presentations, articles, videos, and more!

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### **From Theory to Practice: Building Reliable Event-Driven Services**

*Hugh McKee*

This talk will delve into the key concepts and strategies for creating effective and efficient event-driven services. We will cover the following topics:

**Handling at-least-once message delivery:** This section will discuss the importance of ensuring that messages are delivered at least once, even in the face of network failures or other errors. You will learn about various techniques for achieving this, such as using message acknowledgments and retries.

**Idempotent command handling:** In this section, you will learn about the concept of idempotency, and why it is important for event-driven services. You will also learn about strategies for achieving idempotent command handling, such as approaches for de-duping incoming messages.

**Laws of event-driven physics:** This section will introduce attendees to the laws of event-driven physics and how they can be applied to ensure efficient and effective event exchange in their services. You will learn about concepts such as event ordering, causality, and consistency.

**Live coding examples:** The talk will include live coding examples demonstrating the concepts discussed in the talk. You will see firsthand how the techniques and strategies for building robust event-driven services can be applied in practice.

Throughout the talk, You will learn how to build event-driven services that can handle large volumes of events, network failures, and multiple events simultaneously, emphasizing the best practices and common pitfalls to avoid.

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## **You Are the Pilot: Getting Better with Code Gen AI Tools**

*Sean Wedig*

You might have asked yourself - "Self, what's all this hubub about AI tools for programmers? Am I going to lose my job?" and you might have answered, "I don't know, self. I haven't even really played with any AI code generation tools. There are so many tools, I wouldn't even know where to start."

Or maybe you've said, "Yeah, these code gen tools seem exciting in a glossy corporate demo, but have you tried using a chat interface to `_actually_` develop software? It's a nightmare!"

If those sound like you, then you should come to this talk! We've rolled out AI tools for all engineers at our company, and we've refined usage to get the most out of them. I'll demo several recommended AI tool workflows, deliver tips on effectively using these tools, and discuss how you can get started with HUGE productivity gains as a software engineer! (And maybe - expand your impact and roll the tools out more broadly at your company!)

It's the age of the machine! Take advantage of it!

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## **Agile Pitfalls and How to Parry Them: A Practical Guide**

*Arin Heinselman*

Hey there, fellow conference-goers! ? Imagine this: you've embarked on the Agile journey, armed with good intentions and high spirits, only to find yourself tangled in a web of chaos and confusion. Fear not, because our talk is here to save the day! ????

Join us for a rollercoaster ride through the land of Agile Anti-Patterns. We're not here to bore you with textbook definitions – oh no! Instead, we'll regale you with real-life stories of Agile projects gone awry. Think of it as a cautionary tale with a comedic twist. ?

Ever met the "Scope Creep Monster," who sneaks into your project and eats your deadlines for breakfast? Or perhaps you've danced with the "Stand-up Monologue Maven," who can turn a 15-minute meeting into a soliloquy of epic proportions? ?

Fret not, because we're armed with the wisdom of recognizing these villains in disguise. Our mission? To equip you with strategies and tools to battle these Agile adversaries head-on. From taming the ferocious "User Story Swamp" to breaking free from the clutches of the "Waterfall Whisperer," we've got you covered. ??

So, pack your sense of humor and a notepad for all the gems of wisdom we're about to drop. Let's turn those Agile nightmares into fairy tales of triumph! ? See you at the talk – be ready to laugh, learn, and leave with a newfound Agile swagger. ?

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## **From Legacy Monolith to Microservices via Event Storming**

*Sarah Dutkiewicz*

It can be overwhelming to take a legacy monolith and split it into microservices, especially if the code seems messy. However, conversations with techies and non-techies over policies and process through an exercise called Event Storming can help ease your migration from a monolith to microservices. In this session, you will learn about Event Storming in the context of breaking down a legacy monolith eCommerce system into microservices.

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## **What's that smell? Monitoring air quality with Python, Raspberry Pi, and Redis**

*Justin Castilla*

With a little wiring and a few lines of code, one can create your own hyper-local air sensor system to send alerts, activate smart-windows, and gather data. A sensor measures air particulate density and sends the values to a Raspberry Pi compute unit. The Raspberry Pi then sends the data along with a timestamp and location information to a cloud instance of Redis, a NoSQL data store. Once in Redis, the data can trigger SMS notifications, feed data visualization libraries, or activate electronics such as air purifiers or motors to open or close windows. This can be scaled to monitor air quality in multiple rooms, offices, city blocks, or cities.

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## **Testing Enterprise Software Rewrites**

*Umang Nahata*

Most enterprises have legacy code that needs to be rewritten to keep pace with industry standards, new technologies, and modern infrastructures. The primary purpose of a software rewrite is to ensure functional compatibility before retiring the current system. However, replacing large, complex, bread-and-butter legacy systems is a risky and costly project endeavor, frequently resulting in projects failing, being shelved, or abandoned.

Software rewrites face significant challenges due to many reasons. Testing in this context should

account for these challenges. In this session, I'll share strategies that worked for me and my experiences. Learn tips on minimizing architectural transformation for effective delivery/scoping, auditing test data for internal systems, using legacy systems as test oracles, and building effective automation for testing.

Join me in my story of a real-life successful software rewrite, packed with valuable nuggets of info. that someday you might find useful. Or gain a different perspective or idea that, perhaps, in some shape of form, could be adapted in your current context.

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## **Unveil the Magic Without Hoodini: Transform Your Data Lake into a Fountain of Insights**

*Nadine Farah*

Many people have been using their data lake as vast reservoirs of data. Yet, there's been a real struggle to harness the full potential of this data to power actionable insights. These data lakes often become stagnant because processing and analyzing them is hard. Hudi's magic, however, brings a transformative approach to these challenges. Apache Hudi introduces features and services for upserts, incremental processing, and near real-time access. With its unique capabilities, Hudi breathes life into static data lakes, turning them into responsive, efficient, and dynamic systems. By embracing Hudi, organizations can ensure that their data is not just stored but is consistently ready for agile analytics, leading to informed decision-making and unlocking the dormant potential within their vast data repositories.

In this talk, attendees will learn:

- The challenges with data lakes
- How Hudi unlocks analytics on the data lake
- Build efficient data pipelines with Hudi's incremental processing on the data lake
- Demo on how to get started