



# State of .NET BUILD 2023 Recap

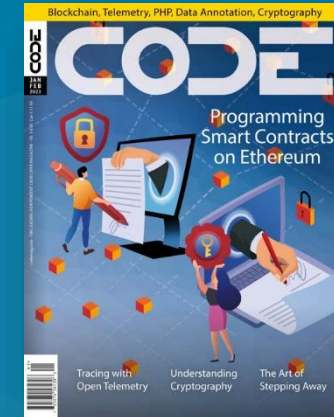
**Markus Egger**

President and Chief Software Architect  
CODE Magazine, CODE Consulting, CODE Staffing

# Kicking Things Off

## Jim Duffy

- Director of Business Development  
CODE Magazine & Consulting
- Former Developer – Drawn to the Dark Side: Now Responsible for  
Marketing & Business Development
- [jduffy@codemag.com](mailto:jduffy@codemag.com) / [My Bio](#)
- International Author and Speaker
- Former Microsoft RD (Regional Director) 9 years
- Former 11-time Microsoft Most Valuable Professional (MVP)
- Twitter: @jmduffy





**CODE**  
CONSULTING



**CODE**  
GROUP



**CODE**  
STAFFING

"Helping People Build  
Better Software"



**CODE**  
TRAINING



**CODE**  
MAGAZINE

# About CODE Consulting



- Custom Software Development
- Web, Cloud, Mobile, Desktop, Serverless, Databases,...
- Copilot Development, AI, GPT & Azure OpenAI
- Application Security Testing
- User Interface and Interaction Design
- Project Rescue, App Modernization (VB, VFP, Access, etc.)
- Support & Maintenance for existing applications





# About CODE Staffing



- Disrupting the world of staffing!
- Giving our customers the ability to have staff on par with Silicon Valley companies...
- ...and our employees a work environment in a bleeding-edge tech company with the **industry leading benefits!**
- [www.codestaffing.com](http://www.codestaffing.com)



# We Need You!

- We are currently “hiring on all cylinders” across the entire CODE Group Organization!
- Check out [www.codestaffing.com/careers](http://www.codestaffing.com/careers)



# Upcoming CODE Group Events



- **Training Classes**

- Secure Coding for C# Developers (June 6 & 7)
- Introduction to Development with Open AI, ChatGPT, Azure Open AI, and more... (June 21)
- Secure Coding for C# Developers (Sept 5 & 6)



**<https://www.codemag.com/training>**

# Free Subscription to CODE Magazine!



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- All registered attendees will automatically receive a free digital subscription to CODE Magazine – no need to do anything, it'll happen auto-magically.
- Subscribers get CODE Focus issues free of charge!
- Please share this free subscription link:



<https://tinyurl.com/sodn052023>



# CODE Mobile App



- Check out the new CODE Magazine Mobile application!
- Available for iOS & Android



# CODE Security - Application Testing Services



- Are you sure your development team practices secure coding techniques?
- Have your application(s) been tested for security vulnerabilities?
- Are you prepared to share with your clients or customers that you've had a data breach?
- Reach out to us today about helping you change any No's to Yes's.
- **[codemag.com/Security](https://codemag.com/Security)**

# Build Cross Platform Apps With Photino

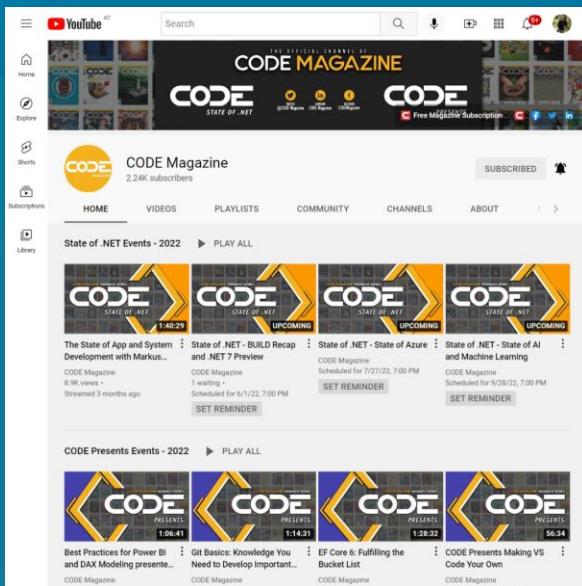
- Build native, cross-platform desktop apps that are lighter than light.
- Open-source framework for building native, cross-platform desktop applications with Web UI technology (HTML/CSS & JavaScript).
- Photino is maintained by the CODE Team with the help of the open-source community.

- [tryphotino.io](https://tryphotino.io)
- [Github.com/tryphotino](https://Github.com/tryphotino)



# Join Us On Social Media









- YouTube channel: <https://tinyurl.com/CODEYTC>
- Twitter: <https://twitter.com/CODEmagazine>
- Facebook: [www.facebook.com/CODEMagazine/](http://www.facebook.com/CODEMagazine/)
- LinkedIn: <https://www.linkedin.com/company/code-magazine/>



# Recordings & Slide Decks

- State of .NET Webinar Series
  - [codemag.com/StateOfDotNet](https://codemag.com/StateOfDotNet)
- CODE Presents Webinar Series
  - [codemag.com/CODEPresents](https://codemag.com/CODEPresents)

**Recent Event Recordings**

<b>State of .NET - The State of .NET App and System Development</b> 2/23/2022  	<b>State of .NET - .NET Conf Recap</b> 11/17/2021  
<b>State of .NET - .NET 6 Preview</b> 10/27/2021  	<b>State of .NET - Azure Architecture</b> 9/29/2021  



# Event Survey – Win \$100!

- Complete this very short 12 question survey for a chance at a \$100 Amazon Gift Card!
- Survey must be completed by 11:59pm ET on Friday 6/2/2023 to be eligible!
- Name selected from registered attendee list. Completed survey is required to win.
- THIS SLIDE WILL BE REPEATED AT THE END AND SURVEY LINK REPEATED IN THE CHAT WINDOW!

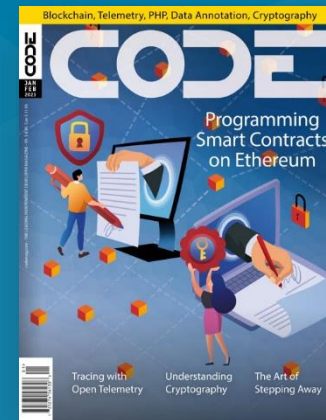


The screenshot shows a survey titled "State of .NET BUILD 2023 Recap". The header text states: "The survey will take approximately 4 minutes to complete." and "Thank you for attending! Please complete this brief 12 question survey to be eligible to win a \$100 Amazon Gift Card. Your survey must be completed by 11:59pm ET (UTC-4) on 06/02/2023 to be eligible to win! One entry per person please. Drawing will occur and the individual winner notified by 06/09/2023." Below this, a second line of text says: "Thank you for attending! Please complete this brief survey. Yes, we still want to hear from you if you were unable to attend but watched the recording instead." The survey form includes three questions: 1. Full Name (required), 2. Company Name (required), and 3. How would you rate the webinar? (required). Each question has a text input field with the placeholder "Enter your answer". The rating question has a star rating interface with five stars. A green chat icon is visible in the top right corner of the survey form.

<https://tinyurl.com/cs052023>

# About the Presenter

- **Markus Egger**
- President and Chief Software Architect  
EPS Software Corp. (dba CODE Consulting)
- Publisher – CODE Magazine
- International Author and Speaker
- Microsoft RD (Regional Director)
- Microsoft MVP 1995-2019
- Email: [markus@codemag.com](mailto:markus@codemag.com)
- Twitter: @markusegger



# Agenda

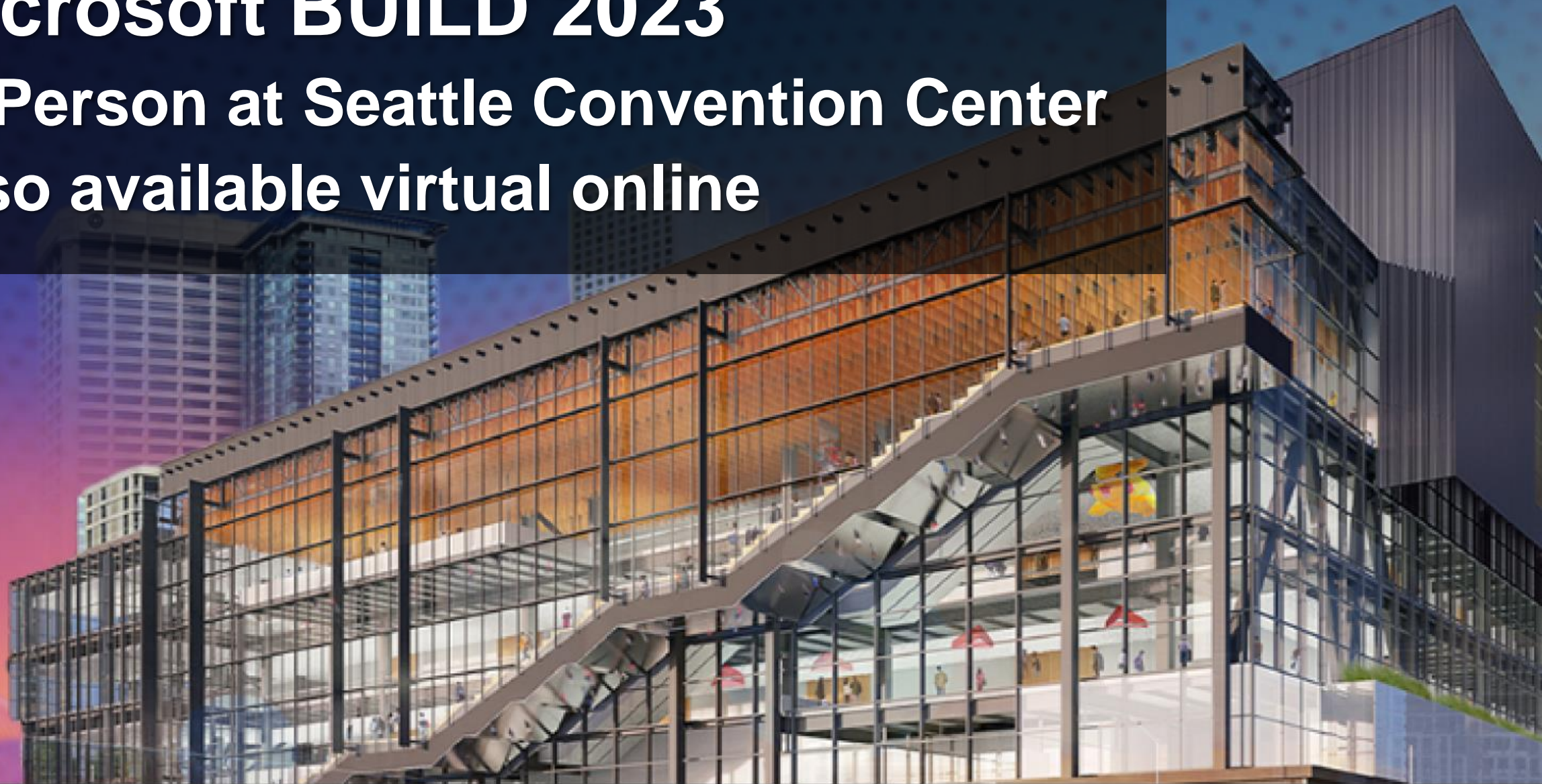
- Where and what was Microsoft BUILD 2023?
- The most important BUILD Announcements
- The Era of AI and Copilot
- Lots of real-world examples of things we now do in production
- Some recommended further information



# Microsoft BUILD 2023

## In-Person at Seattle Convention Center

Also available virtual online



*Summit at the Seattle Convention Center*

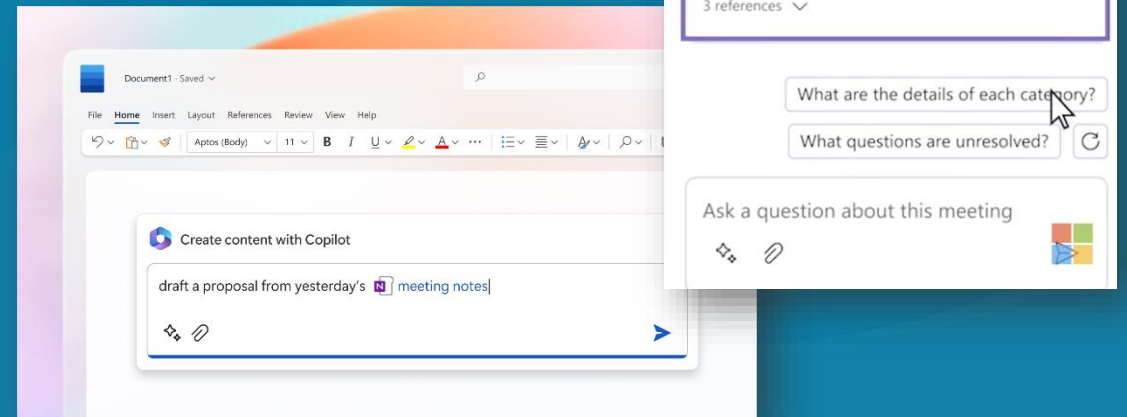
# The Era of Copilot



# Living History

# Microsoft Copilot – Everywhere!

- Microsoft is now introducing Copilot features in practically all applications
- Copilots are expected to drastically improve productivity
  - They already are today!
- <https://news.microsoft.com/reinventing-productivity/>



# Github Copilot

- Github Copilot assists in writing code
  - Now used by over 1 million developers
  - Productivity gains of more than 50%!
- 
- Check out the recording from our State of .NET Webinar and on our YouTube channel!



# Bing Chat – “Edge Copilot”

The image shows a screenshot of the Bing homepage with the Bing Chat interface overlaid on the right side. The background is a scenic image of a beach with a thatched roof in the foreground. The Bing logo and navigation links (Chat, Images, Videos, Shopping, Maps) are at the top. A search bar is in the center, and a user profile is on the right. The Bing Chat interface is on the right, showing a chat window with a question about weather in Maui, Kihei, and a response about the weather forecast. Below the response are links to learn more and a weather widget for Kihei, Hawaii.

Microsoft Bing Chat Images Videos Shopping Maps

Markus 17275

What is the weather going to be like tomorrow?

46/2000

I am planning a trip for our anniversary in September. What are some places we can go that are within a 3 hour flight from London Heathrow?

Try it Learn more

Chat Compose Insights

Will the weather be nice enough today in Maui, Kihei, to go swimming or biking?

✓ Searching for: weather Maui Kihei swimming biking

✓ Generating answers for you...

According to the weather forecast for Kihei, Hawaii, today's weather is **light rain** with a high of **82 degrees Fahrenheit** and a low of **69 degrees Fahrenheit**. The chance of precipitation is **42%**. You might want to check the weather again later before going swimming or biking. Stay safe!

Learn more: 1 of 20

1. a.msn.com 2. accuweather.com 3. weather.com 4. mauinow.com

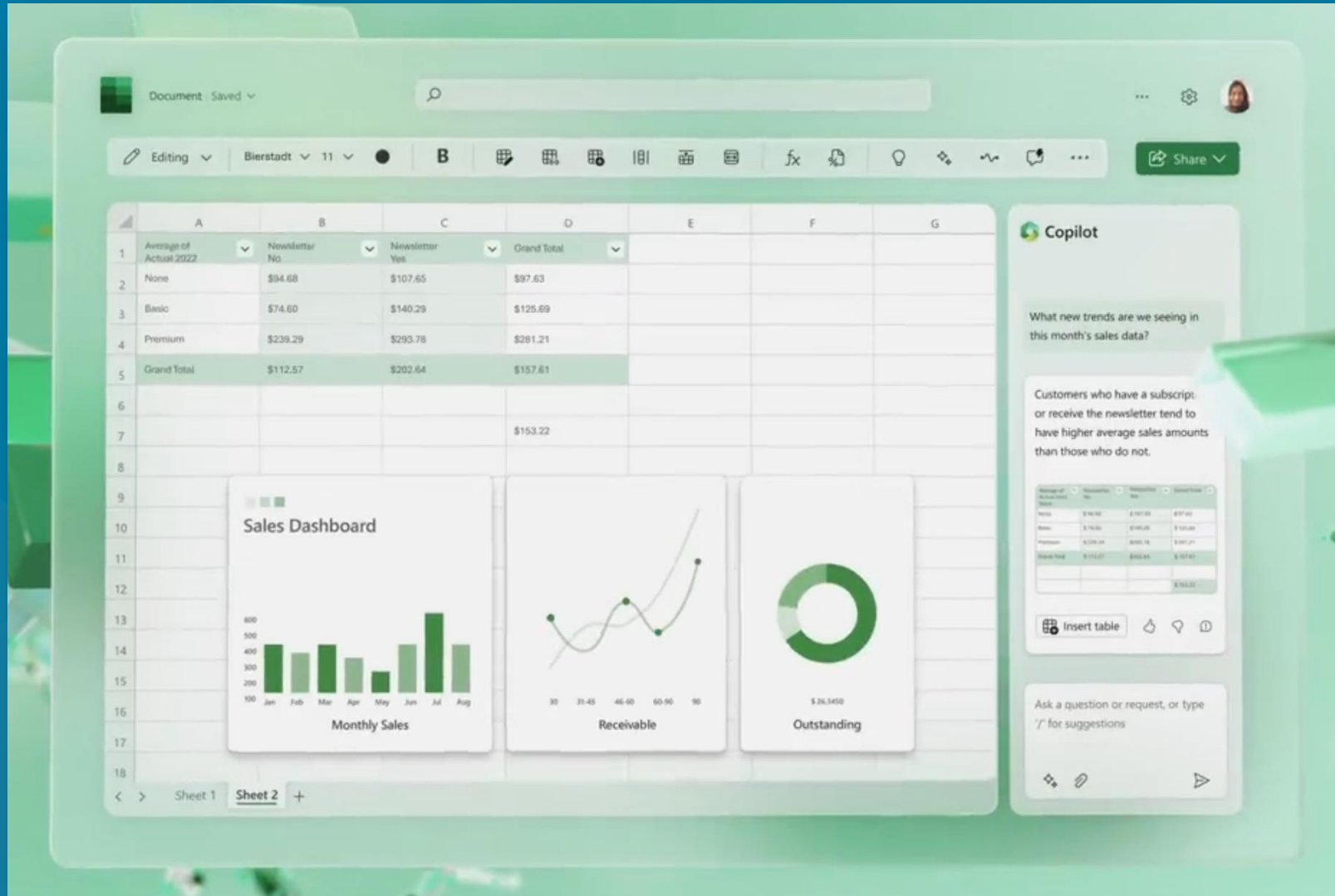
Kihei, Hawaii Updated a few minutes ago

73°F 82° Precip: 16% 69° Wind: 6 MPH

Ask me anything...

0/2000

# Copilot in Excel





# Copilot in Power Point

The screenshot displays the Microsoft PowerPoint interface with a presentation titled "Presentation1 • Saved". The ribbon includes tabs for File, Home, Insert, Design, Transitions, Animations, Slide Show, Review, View, and Help. The Home tab is active, showing font settings (Aptos (Body), size 11) and various formatting options. A search bar is located at the top right. The left sidebar shows a slide thumbnail list with five slides: 1. Title slide (HAPPY GRADUATION TASHA), 2. Class of 2023, 3. Memories, 4. A collage of photos, and 5. Another collage. The main slide area shows the first slide, which features a large photo of a young woman (Tasha) and the text "HAPPY GRADUATION TASHA". Below the slide, there are buttons for "Keep it", "Adjust", "Regenerate", and "Delete". On the right side, the Copilot pane is open, displaying a draft of the presentation content. The draft includes a paragraph about Tasha's high school graduation, a list of her accomplishments (Glenwood Springs, soccer, drama, electronics club, honor roll), and advice to be bold and adventurous. Below this, it states "Here's a draft with 9 slides, including sections for memories, accomplishments, and advice for the future." and "Consider personalizing slides 7 and 9." There are also buttons for "Undo", "Add an image", "Add animations", and a text input field for "Describe what you'd like to create, or type / for suggestions".

Presentation1 • Saved

Search

File Home Insert Design Transitions Animations Slide Show Review View Help

Comments Catch Up Present Editing Share

Aptos (Body) 11 A<sup>+</sup> A<sup>-</sup> B A<sup>1</sup> ...

1 Title

2 CLASS OF 2023

3 MEMORIES

4

5

HAPPY GRADUATION TASHA

Keep it Adjust Regenerate Delete

Copilot

Celebrate my daughter Tasha's high school graduation. She's graduating from Glenwood Springs, she plays soccer, does drama, and is in the electronics club, on the honor roll. Our advice to her is to be bold and adventurous!

Here's a draft with 9 slides, including sections for memories, accomplishments, and advice for the future.

Consider personalizing slides 7 and 9.

Undo

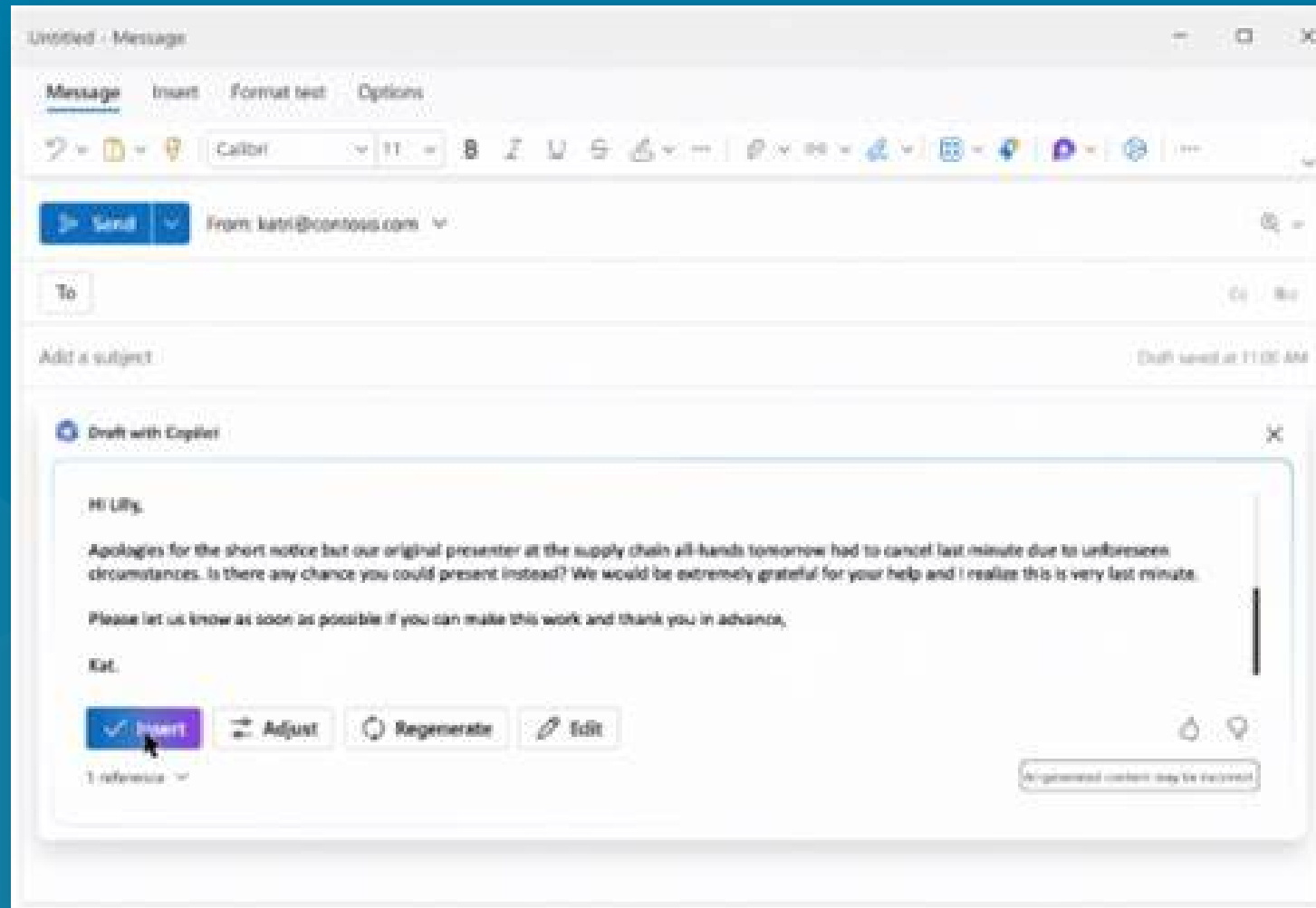
1 reference

Add an image

Add animations

Describe what you'd like to create, or type / for suggestions

# Copilot in Email/Outlook



# Copilot in Power Platform

The screenshot displays the Copilot interface within a Power Platform environment. On the left, a table lists various cities. On the right, a chat window shows a conversation where Copilot has added a 'Location' column and suggested additional columns based on user prompts.

Inspector type	Location
	New York City, New York
	Los Angeles, California
	Chicago, Illinois
	Houston, Texas
	Philadelphia, Pennsylvania
	Phoenix, Arizona
	San Antonio, Texas
	San Diego, California
	Austin, Texas
	Jacksonville, Florida

**Chat Conversation:**

- User:** Add a column called Location and populate it with sample data  
Just now
- Copilot:** Sure, here's the Location column with sample data.  
Just now | 👍 🗑️
- User:** Give me suggested columns for the table  
Just now
- Copilot:** Here are some suggested columns: description, status, and contact information.  
Just now | 👍 🗑️
- User:** Add those columns  
Just now
- Copilot:** We've added these columns: Description, Status, and Contact information.  
Just now | 👍 🗑️

# Copilot in Teams

10 AM

Open in Stream

Content

ware Proposal.pptx

48m 42s

# Topics

negotiation strategy

nts round table

surplus

newals

rtunities

approvals

Notes

@ Mentions

Transcript

Core accounts.loop

Just now

## Quarterly results and forecasts for Core Accounts

### Summary

Based on what attendees said in the meeting

- \$230K revenue shortfall in this quarter
- Inventory 15% surplus (renewable products and recycled materials)
- Account leads to propose discounting scenarios to lower inventory surplus and meet sales budget
- Proseware was discussed as a leading opportunity

### Notes

- Beth emphasized importance of Proseware negotiation strategy and need to be creative with offers - this is a must win deal. 1
- The team identified a new opportunity with Proseware that could enable us to exceed quota for the quarter - need to prioritize ASAP.

+ Add note

### Tasks

- ☐ Follow up with finance today to discuss Proseware proposal and secure discounting approvals. @Samantha Cantrall Set due date
- ☒ Set agenda for next week's follow-up meeting. 2 @Beth Andrews 3/17/2023

Copilot

this meeting.

11:30 AM

What other customers were discussed and what factors were considered?

Copilot 11:30 AM

- Only Lamna Healthcare and Proseware were discussed. 1
- Barry was recommending Lamna Healthcare, but the consensus was Proseware was better placed due to supply chain efficiencies. 2
- Based on surplus inventory levels, and customer demand forecast. 3
- Proseware was identified as the best fit to possibly bridge the budget gap. 4

Copy

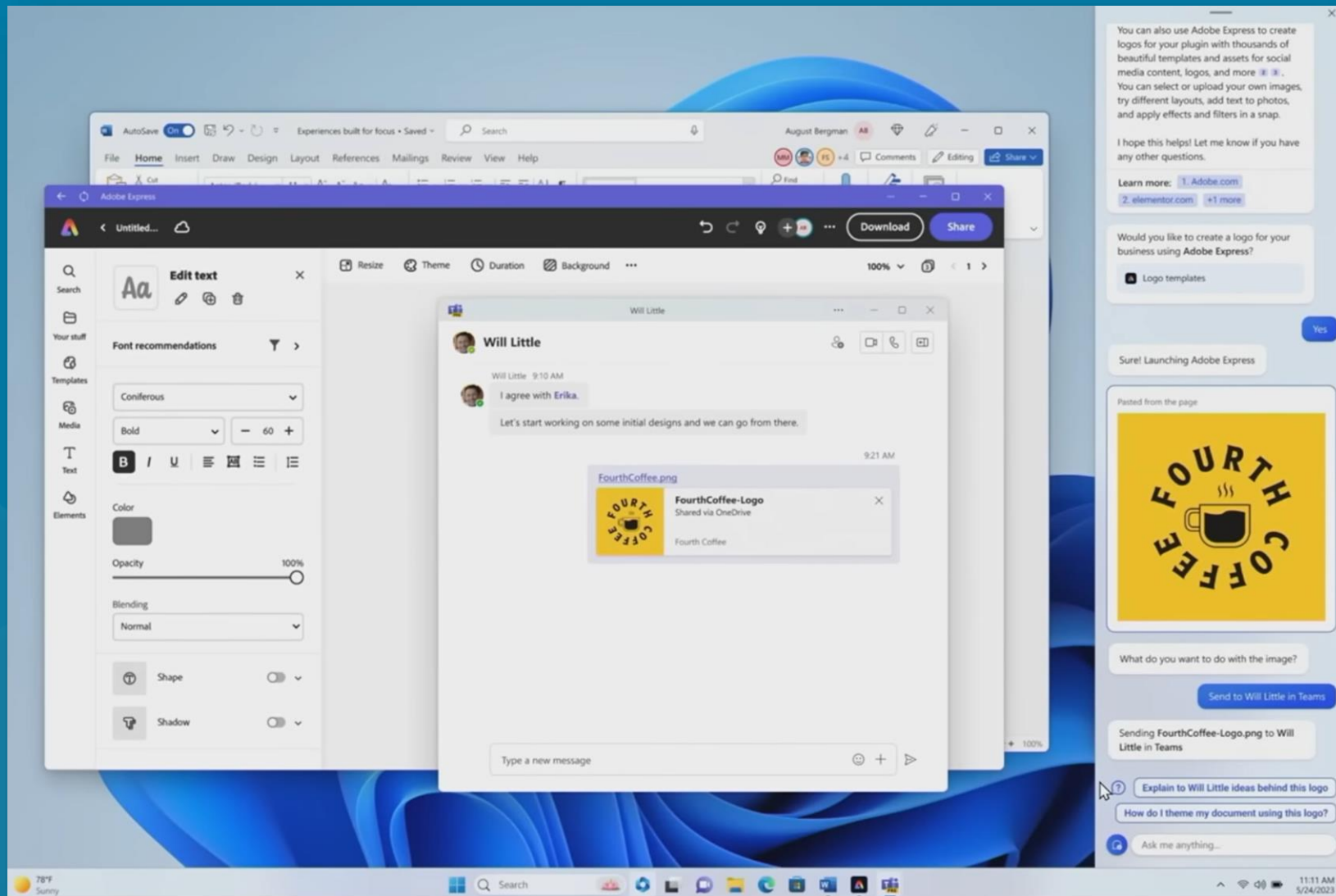
4 references

What are the supply chain challenges?

Why did Lamna Healthcare not get selected?

Ask a question about this meeting

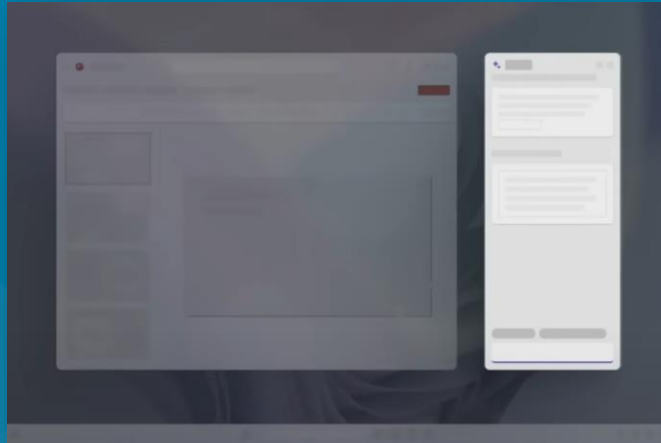
# Copilot in Windows



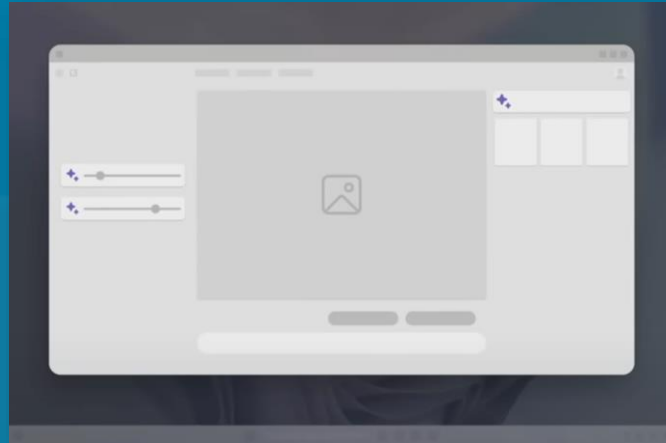


# Current Copilot UI Paradigms

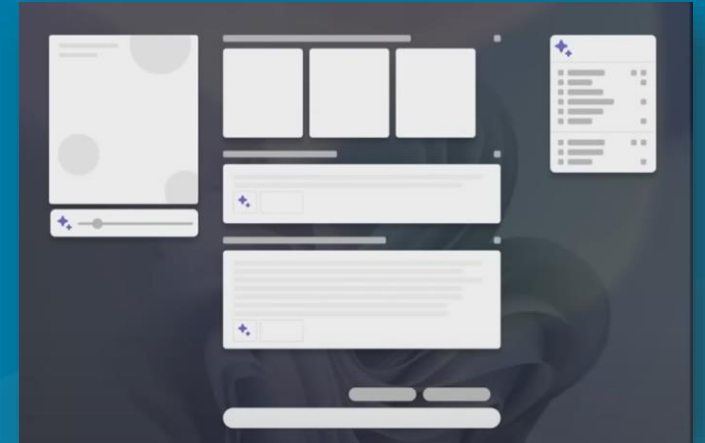
**Beside**



**Inside**



**Outside**



# Resulting Characteristics of Copilots

- Drastically improved productivity
  - Expected to improve 50%+ every year!
- Every year, twice as good. Every year, 1/10<sup>th</sup> of the cost.
- The situation is evolving extremely fast.
  - Faster than the Web wave was.
  - Faster than the Mobile wave was.
- We just went from “Software is eating the world!” to **“AI is eating software!”**.

# Resulting Characteristics of Copilots (cont.)

- We are only at the very beginning of all this. We are basically dealing with the AI equivalent of toddlers 😊
- No true Singularity will result from this, but...
  - ...this may well be the start of drastic societal changes that makes the Industrial Revolution look like child-play.
  - ...AI may create security and regulatory nightmares

# Copilots are Extensible!

- Copilots are a new development ecosystem!
- You can extend Copilots in various ways
- You can also build your own copilots
- The expectation is that in the future, **all of us will be developing a lot of Copilots!**

**All apps without  
Copilot features  
are now legacy!**



# AI & Machine Learning in Practice Today

# Our Capabilities Today

- Narrow Learning (Deep and Shallow)
- No real General Artificial Intelligence
  - Although that term is also used in confusing ways
  - I also question whether “general” AI is all that critical for our purposes
- The results we can already achieve are both mind-boggling and very practically useful

# Using AI Today



BUILT INTO APPS AND  
SERVICES



DEVELOPING AGAINST  
PRE-TRAINED AIS



TRAINING YOUR OWN  
AIS

# Azure Cognitive Services

- Speech
  - Speech to text, text to speech, translation, speech and speaker recognition
- Language
  - Sentiment analysis, translation, question answering, conversation, reco,...
- Vision
  - Computer vision, custom vision, face recognition
- Decision
  - Anomaly detection, content moderation, personalization
- **Azure OpenAI Services**

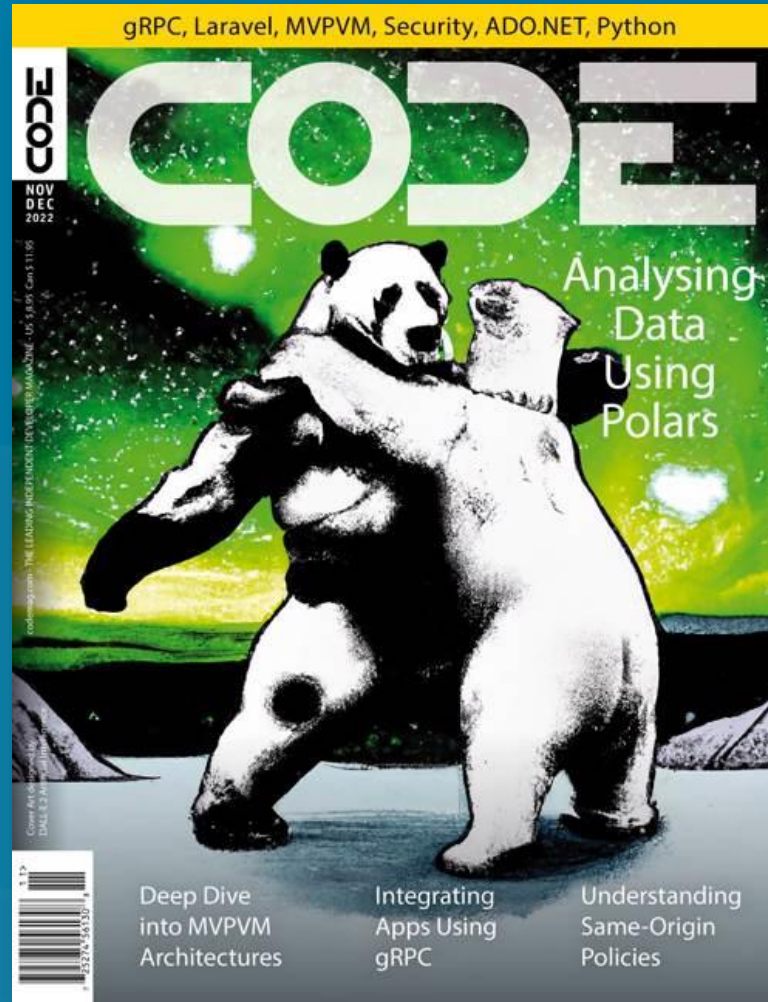
# Who is OpenAI?

- Non-Profit OpenAI Incorporated
- For-Profit OpenAI Limited Partnership
- Founded in 2015 in San Francisco
- Microsoft made a \$11 billion investment and reportedly owns 49% of OpenAI LP
- All OpenAI Infrastructure runs on Azure



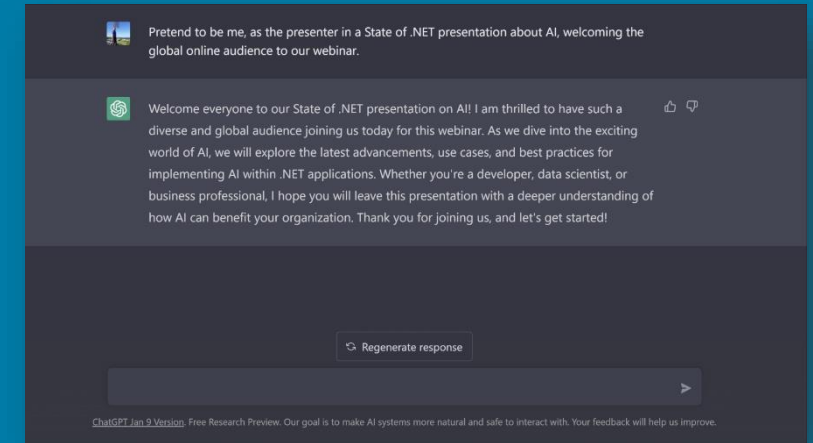


# OpenAI – DALL-E 2



# OpenAI's ChatGPT

- \*GPT = Generative Pre-Trained Transformer
- You have probably heard about this 😊
  - Although just very recently
- A technological leap that forms the basis for a lot of new tech
- Microsoft is very heavily invested
- **ChatGPT is essentially a tech demo!**
  - Although it is in the process of becoming a bit more...



# LLMs – Large Language Models

- LLMs are essentially “text calculators” or “text predictors”
- They are very good at generating text that answers questions or provide a back-and-forth discussion

# The Scale Involved





# Azure OpenAI for Developers

- OpenAI features are now available to use in our own applications through Azure OpenAI
  - You can currently sign up for approval
- Azure OpenAI provides access to OpenAI features with all the added Azure benefits
  - It is also possible to use OpenAI features directly from OpenAI, but the Azure version already adds a lot, and will likely add more in the future
- This provides an API that allows us to create our own Copilot-style features



# Developing Copilots

- Copilots are a combination of a variety of technologies
- LLMs drive the human-like comprehension and responses
- Other AIs provide additional data
- Conventional data sources can be included as well
- There is some sort of Copilot UI that ties it all together
- Copilot needs to “drive” the application(s) involved
- Note: ChatGPT is now also evolving into an extensible platform

# Copilot Request Flow

Request is entered

Intent is determined

The intent is often curated

Additional data is retrieved and ingested (RAG)

An answer is prepared

The answer is often curated

Output is generated

Repeat 😊 (with all the context preserved)

# Side-Note: Many Other Scenarios!

- OpenAI functionality is useful for many things beyond Copilots
- Example: CODE Legacy Analyzer

# Side-Note: ML.NET

- Machine Learning library for .NET developers
- Supports shallow and deep learning for narrow models
- Execution and training in all .NET applications
- Great for developers who already know .NET
- Support for model standards, such as ONNX or TensorFlow

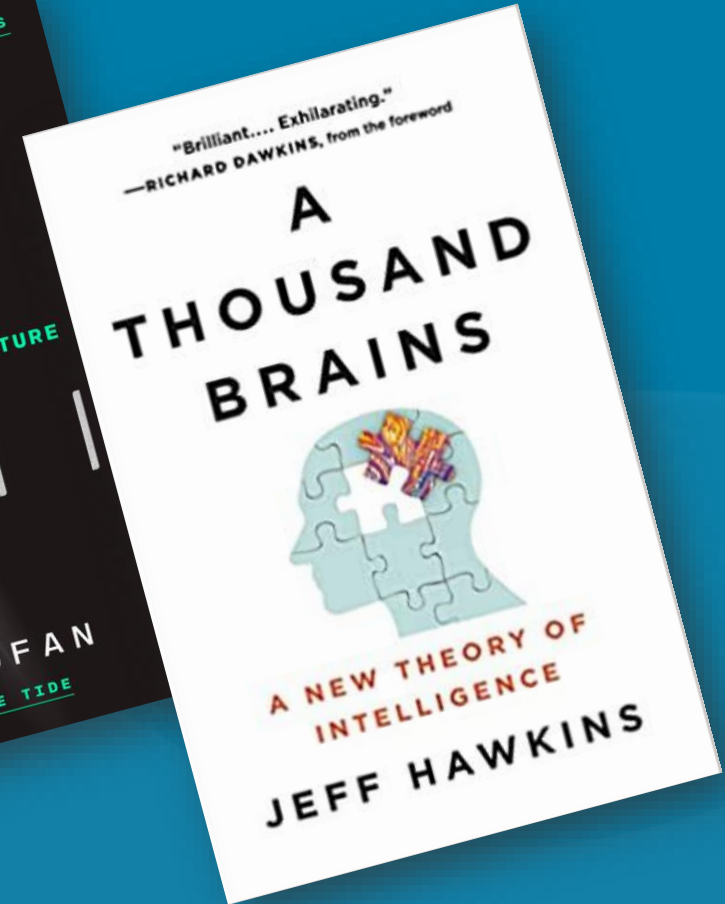
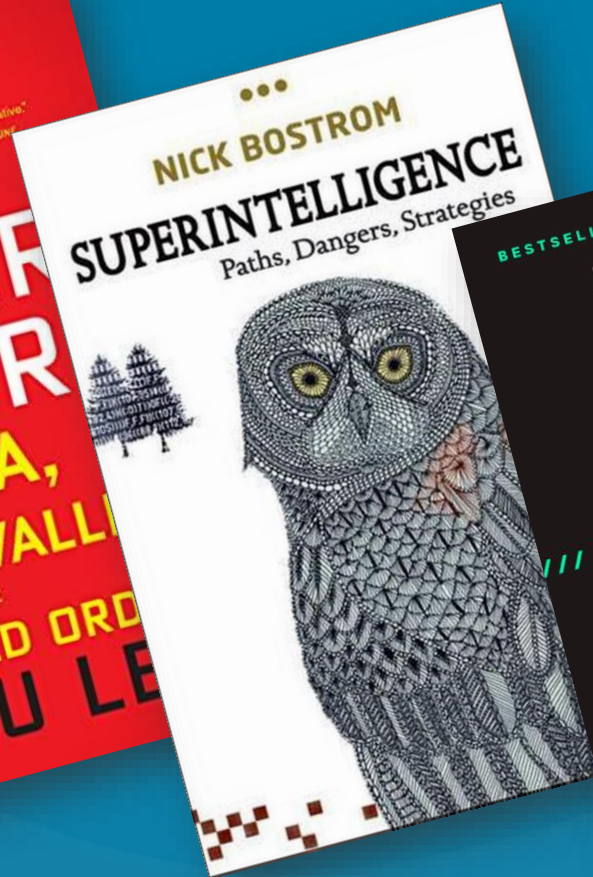
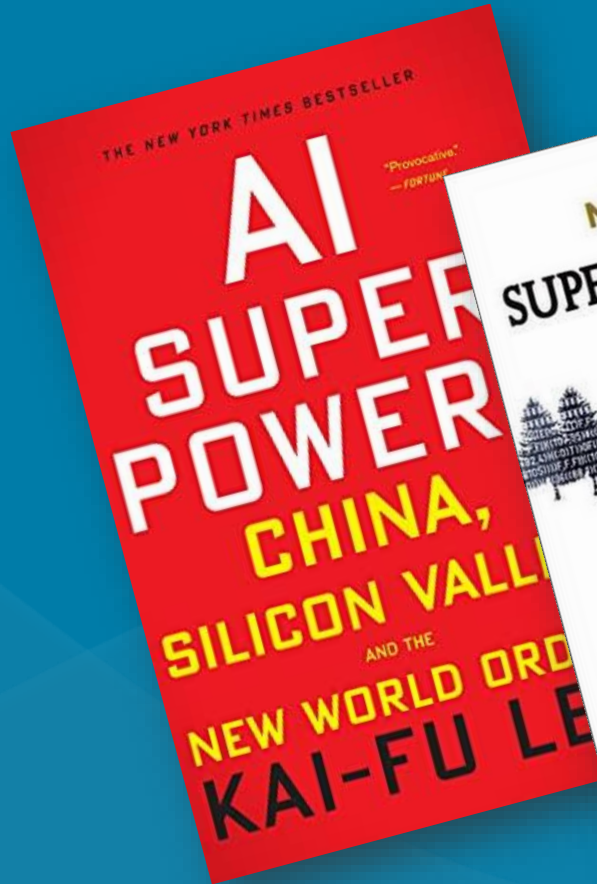
Further Reading/Watching



# Sessions to Watch – [build.microsoft.com](https://build.microsoft.com)

- Day 1 Opening Keynote(s)
  - Microsoft Build opening
  - The era of the AI Copilot
  - Next Generation AI for developers with the Microsoft Cloud
- Day 2 Keynote (especially the Panos Panay part)
  - Shaping the future of work with AI
- State of GPT
- Inside Azure innovations with Mark Russinovich
- Day 3 Closing Session – Scott and Mark Learn to Code

# Recommended Reading



# Other Announcements

# CODE Training:



**Development with OpenAI,  
ChatGPT, Azure OpenAI, and more...**

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**State of .NET BUILD 2023 Recap**

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Thank you for attending! Please complete this brief survey. Yes, we still want to hear from you if you were unable to attend but watched the recording instead.

\* Required

1. Full Name \*

Enter your answer

2. Company Name \*

Enter your answer

3. How would you rate the webinar? \*

☆☆☆☆☆











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**Recent Event Recordings**

<b>State of .NET - The State of .NET App and System Development</b> 2/23/2022  	<b>State of .NET - .NET Conf Recap</b> 11/17/2021   
<b>State of .NET - .NET 6 Preview</b> 10/27/2021  	<b>State of .NET - Azure Architecture</b> 9/29/2021   

# CODE AI & CODE Copilot

- Helping companies implement AI features is now a major service we offer
- This is especially true for copilot-stye features in existing and new applications
- Contact us for more information and to schedule a free demonstration and/or brainstorming session
- [info@codemag.com](mailto:info@codemag.com)
- [www.codemag.com/ai](http://www.codemag.com/ai)



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<https://tinyurl.com/sodn052023>

# Contact us with Questions!

## CODE/EPS Contact

[www.codemag.com](http://www.codemag.com)

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