



**AI FOR EVERYONE**

**DOUGLAS STARNES**  
**MEMPHIS MICROSOFT COMMUNITY DAYS 2024**



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# OBLIGATORY NARCISSISM SLIDE

(WHO IS THIS GUY?)



- Hi! I'm Douglas!
- Local to the Memphis area (Oakland, in Fayette County)
- Professional Explainer
- User Groups and Conferences
  - Memphis Python
  - Memphis Global AI
  - Scenic City Summit
- Speaker
- 5x Microsoft Most Valuable Professional
  - Developer Technologies (Python)
  - AI Platform

# DISRUPTIVE TECHNOLOGY PHASES

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NOVELTY

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But I can live without it.

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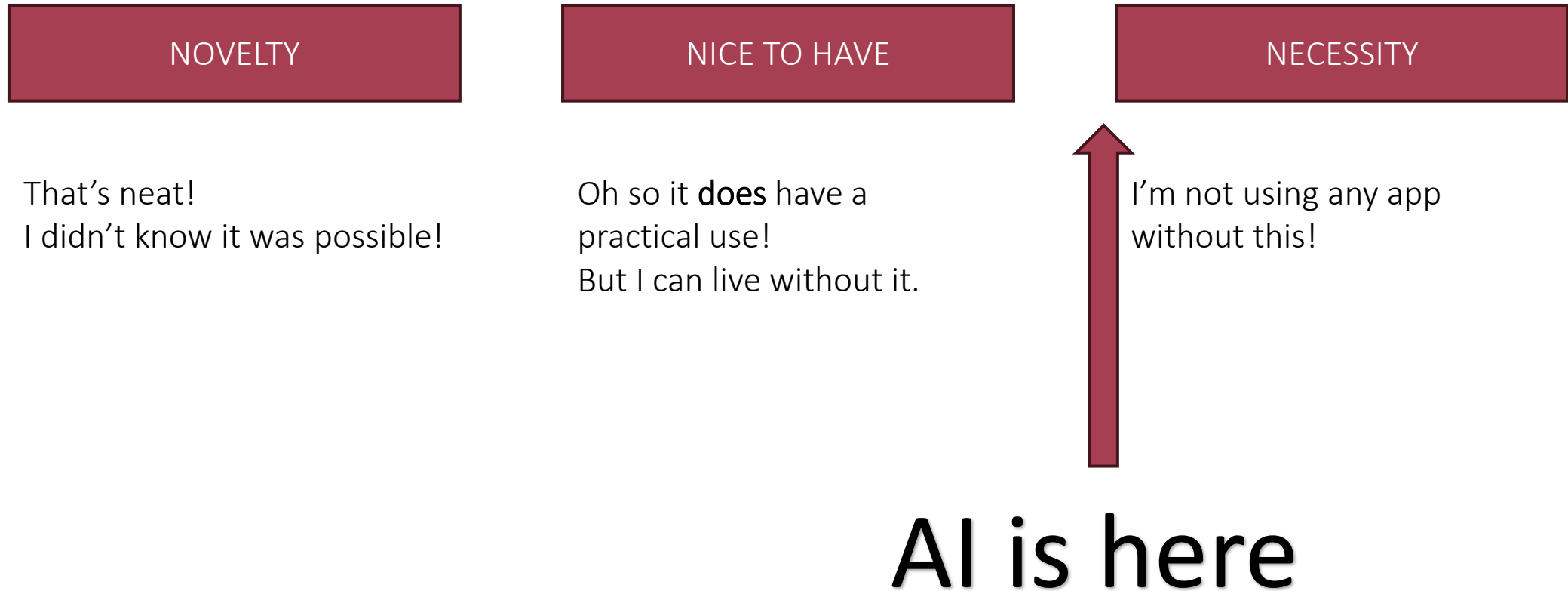
## NICE TO HAVE

Oh so it **does** have a  
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But I can live without it.

## NECESSITY

I'm not using any app  
without this!


# DISRUPTIVE TECHNOLOGY PHASES







# AI IS HARD

- LIKE, REALLY HARD
  - SPECIALIZED KNOWLEDGE
  - DEPLOYMENT
  - INFRASTRUCTURE
- 

# MEET AZURE AI SERVICES

- Collection of models addressing common machine learning tasks
  - sentiment analysis, object detection, speech recognition
- Trained at Microsoft scale
- Exposed as REST services
  - SDKs for popular languages like Python and C#
- Used to be Azure Cognitive Services, and some SDKs will still reflect that name

# AZURE AI SERVICES PROCESS

- Provision a service with Azure
  - Or deploy a container
- Identify and authenticate using tokens
- Send the data for prediction to an Azure AI service
  - JSON for the REST APIs
  - Language native objects or structures for the SDKs
- Microsoft will perform some machine learning “magic”
- You’ll be charged a little bit of money
  - Literally pennies in most cases
  - Free quotas exist for many services
- Get the results
  - JSON for the REST APIs
  - Language native objects or structures for the SDKs
- Often the “hard work” is reduced to a single line of code

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- Used to be Azure Cognitive Services, and some SDKs will still reflect that name
- **Add AI to almost any app, without knowing anything about AI!**

# THE AZURE AI SERVICES

AZURE OPENAI

AZURE AI SEARCH

CONTENT SAFETY

SPEECH

DOCUMENT  
INTELLIGENCE

VISION

CUSTOM VISION

FACE

TRANSLATOR

LANGUAGE

VIDEO INDEXER

IMMERSIVE READER

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VIDEO INDEXER

AI-102  
Azure AI Engineer

BONUS

AZURE AI BOT  
SERVICE



# AZURE AI BOT SERVICE

- The only AI service that does not implement AI
- Communications framework for building intelligent agents (aka chatbots)
- Hosting on Azure
- Often leverages the other Azure AI services
- SDKs for Python, C# and JavaScript/TypeScript
- Bot Framework Composer
  - No-code authoring tool for creating Azure AI bots
  - Similar in concept to Power Automate or Copilot Studio

# AZURE AI CONTENT SAFETY

- Examines images and text for potentially inappropriate content
  - Hate, Sexual, Violence, SelfHarm
- Prompt shields
  - Prevents prompts to LLMs from circumventing safety restrictions
- Demoing this service would be awkward (and likely violate the code of conduct)
  - So you'll have to trust me that it works.

# AZURE AI CUSTOM VISION

- Train and deploy image classification models on your data
- Smart Labeler
  - Simplifies the process of assigning labels to large amounts of image files
- Web studio or SDK

# AZURE AI FACE

- Facial detection, recognition and analysis
- Facial detection
  - Identifies zero or more objects representing faces
- Facial recognition
  - Associates identified faces with the identity of a person
- Facial analysis
  - Location of face landmarks (eyes, nose, mouth)
  - Attributes such as hats and glasses
- For features other than facial detection, you have to make your case to Microsoft for approval

# AZURE AI TRANSLATOR

- Translate text between languages
- Profanity filtering
- Language detection
- Custom translation
  - Only to and from English

# AZURE AI IMMERSIVE READER

- Designed to assist readers and learners with reading comprehension
  - Visually isolate content for emphasis
    - Splitting words into syllables
  - Show pictures for words
  - Parts of speech
  - Text to speech
  - Real time translation

# AZURE AI VIDEO INDEXER

- Apply the concepts of Face, Translator, Vision and Speech services to video

# AZURE OPENAI SERVICE

- ChatGPT all the things!
- Provides an API to access OpenAI's models
  - GPT-4, GPT-4o, GPT-4o mini, DALLÉ-3, Whisper and more
- You also get all of the features of Azure integration such EntraID, monitoring, billing
- Assistants
  - Create your own GPT with custom instructions and functions
- Prompt flow



# AZURE AI SEARCH

- Create a search engine on your data
- Supports vector and full text search
  - GPT-4, GPT-4o, GPT-4o mini, DALLÉ-3, Whisper and more
- Generative AI features
  - Applications with RAG (retrieval augmented generation)

# AZURE AI SPEECH SERVICE

- Speech recognition (speech to text)
- Speech synthesis (text to speech)
- Translation
- Speaker identification
- Custom neural voices
- Avatars

# AZURE AI DOCUMENT INTELLIGENCE

- Formerly Form Recognizer
- Extract information from forms and other document types
- More than OCR
- Context aware to recognize tables, and preserve structure and layout
- Prebuilt models for checks, invoices and tax documents

# AZURE AI VISION

- Extract information from images
- Optical Character Recognition (OCR)
- Object detection
- Image tagging
- Image captioning
- Background removal
- Thumbnail generation
- Video analysis

# AZURE AI LANGUAGE

- Sentiment analysis
- Summarization
- Key phrases extract
- Named Entity Recognition
- Question answering (formerly QnA maker)
- Conversational language understanding (formerly LUIS)
- Personally Identifiable Information (PII) detection

# DEMOS

All demos come with the Works on My Machine  
Seal of Approval

*(image courtesy of Microsoft Designer)*



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# DEMOS

All demos come with the Works on My Machine  
**HIPPOPOTAMUS** of Approval


*(image courtesy of Microsoft Designer)*







# OTHER PRODUCTS

- Azure Machine Learning
    - Automated Machine Learning
    - Machine Learning Designer
    - Notebooks
    - Azure AI Studio
  - Azure Databricks
  - Microsoft Fabric
  - Copilot Studio
  - AI Builder
- 

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THROUGH NOV. 1, 2024

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