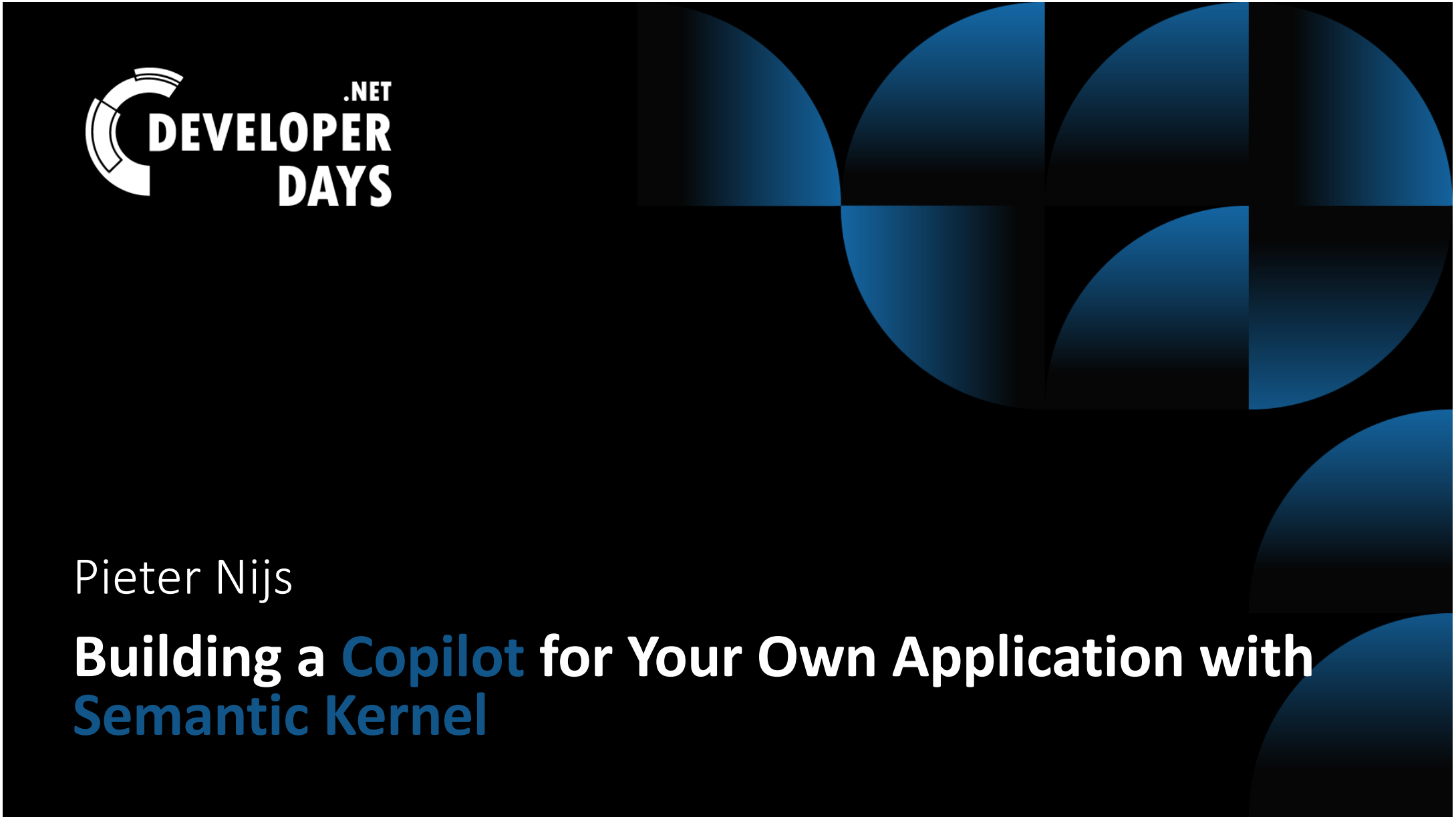
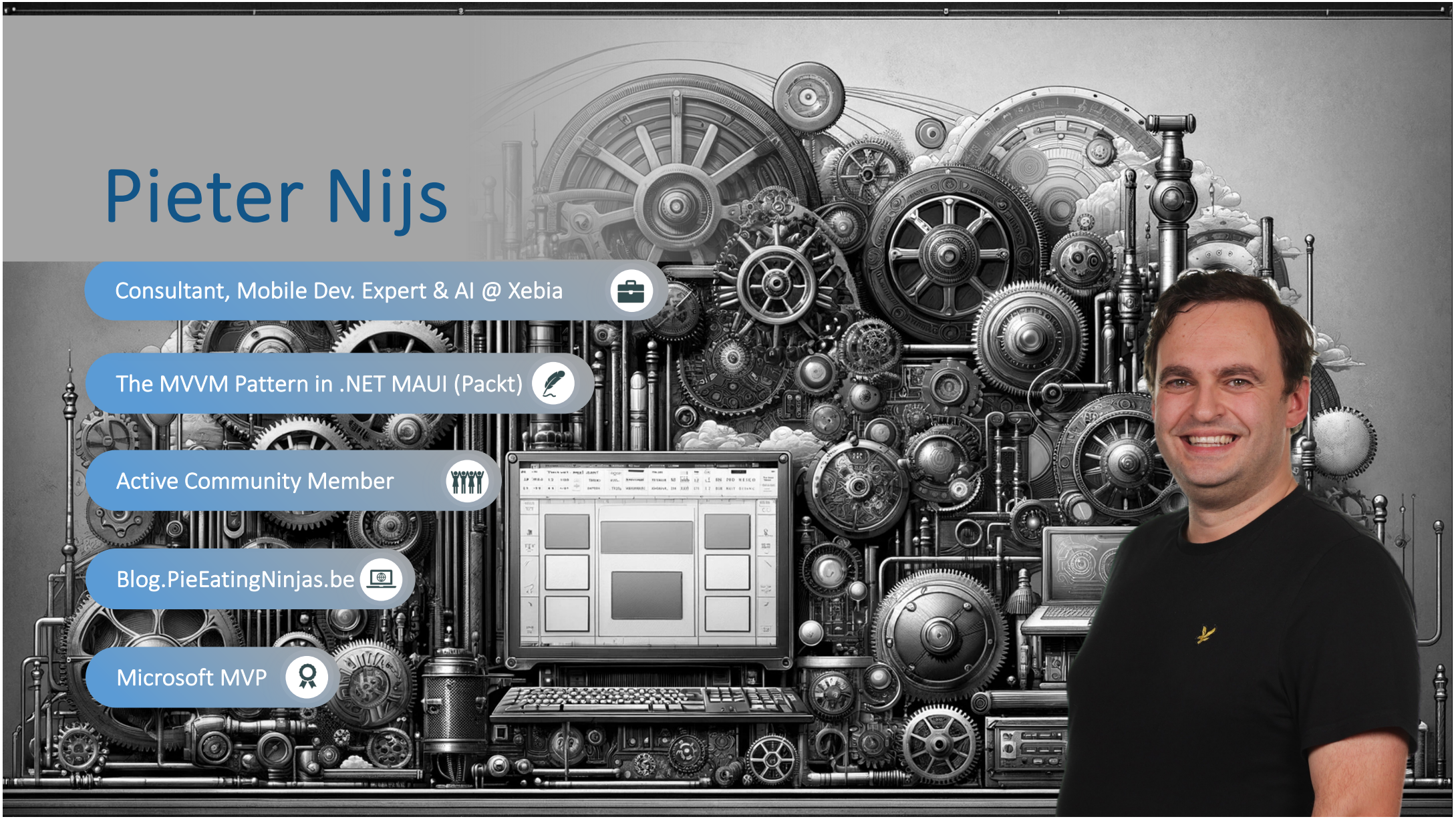


Pieter Nijs

Building a Copilot for Your Own Application with Semantic Kernel

Building a Copilot for Your Own Application with Semantic Kernel


Pieter Nijs
Consultant, Mobile Dev. Expert & AI @ Xebia
The MVVM Pattern in .NET MAUI (Packt)
Active Community Member
Blog.PieEatingNinjas.be
Microsoft MVP

Copilot:

[ˈkoʊˌpaɪlət] *noun*

1. An AI buddy that engages in conversation with a user to collect information and confirm understanding.
2. A digital assistant that collaborates closely with a user, requiring consent before executing tasks or actions.

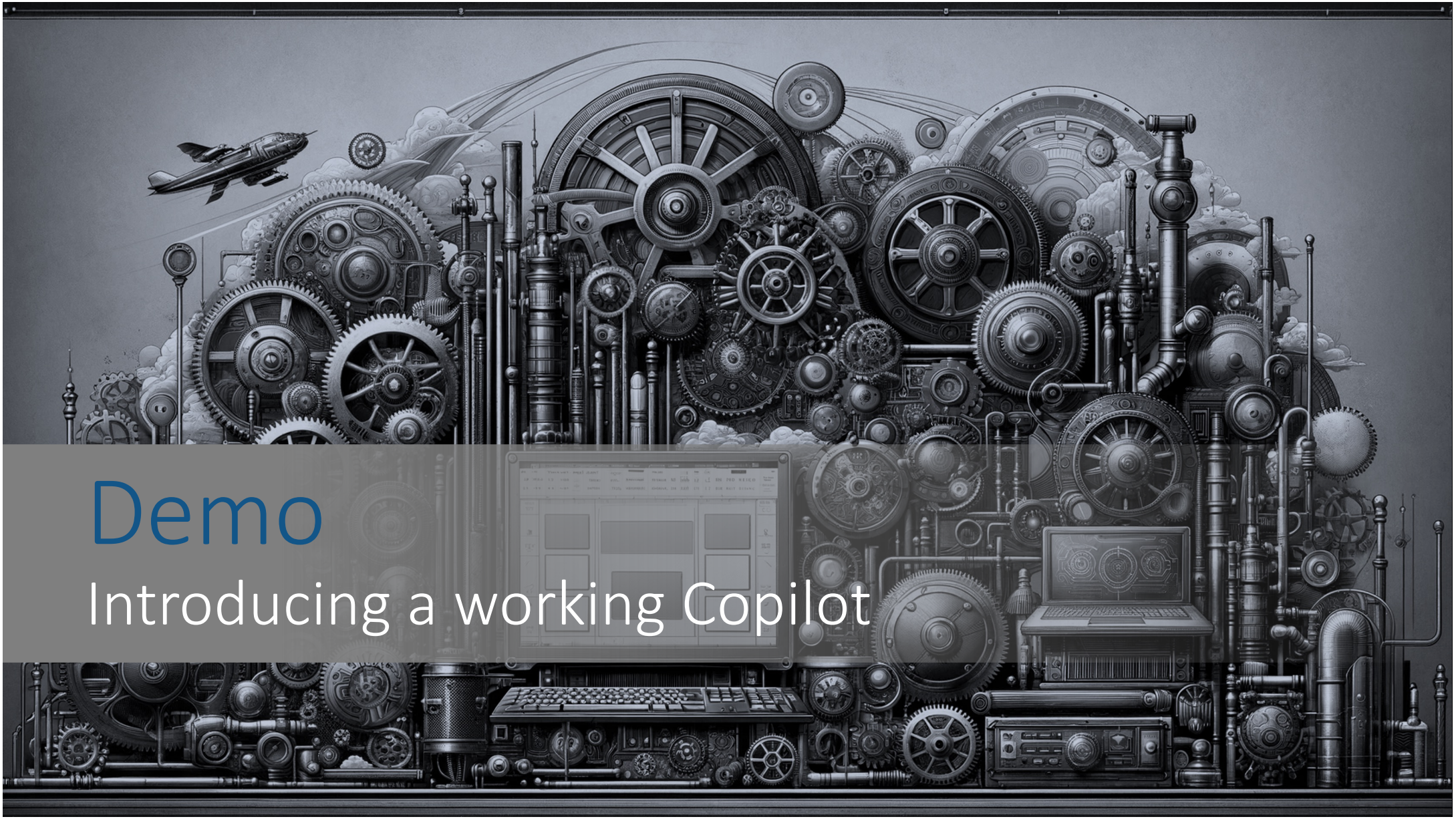
Going Beyond
RAG

RAG = enhancing responses with information retrieval

RAG is part of a Copilot

Our Copilot focusses on

- Conversational AI, engaging with user
- Gather information
- Clarify intents
- Seek permission before taking action



Demo

Introducing a working Copilot

Under the hood

Large Language Model

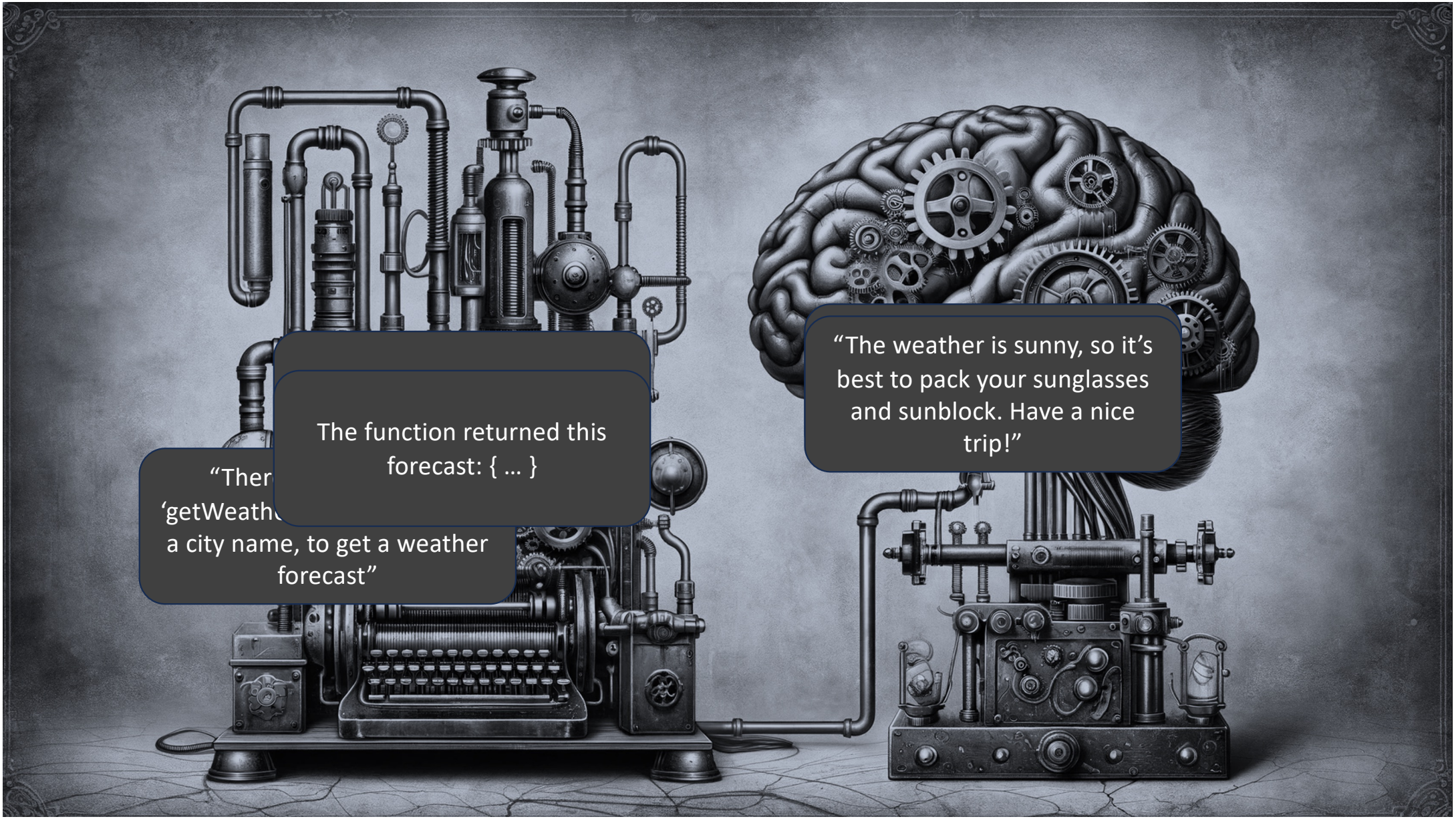
- GPT 4
- OpenAI API
- Azure Open AI Services
- Prompt Engineering

Semantic Kernel

- Open-Source SDK by Microsoft
- C#, Python, Java
- Orchestrate AI capabilities
- Build intelligent Agents that understand and execute complex workflows

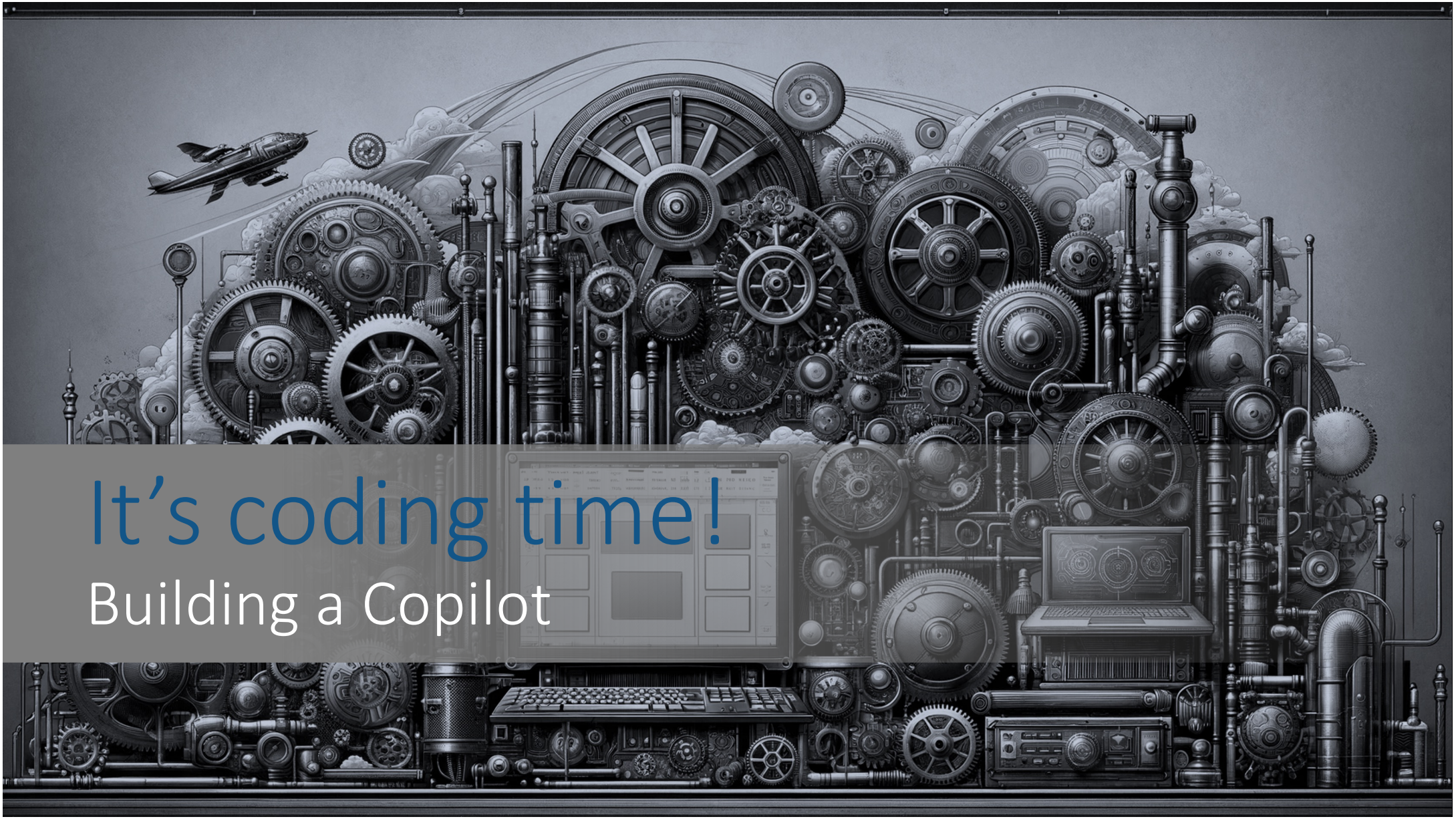
OpenAI Function Calling

- LLM suggests specific function to call in response to user query
- Response is sent back to LLM
- >= GPT 3.5 Turbo
- Seamless with Semantic Kernel


“Ther
‘getWeath
a city name, to get a weather forecast”
The function returned this forecast: { … }
“The weather is sunny, so it’s best to pack your sunglasses and sunblock. Have a nice trip!”

Let’s build this

- Our API endpoints are ready to use
  No update needed
- Define a goal (Prompt Engineering)
- Define functions (Plugins, Function Calling)
- Orchestration through Semantic Kernel



It’s coding time!

Building a Copilot

Key Takeaways

Getting started is straightforward

- Proof of Concept
- Decision Maker Buy-In
- Familiar tools
- Abstraction through Semantic Kernel

The Principle of Diminishing Returns

- Quick Wins
- Refinement Takes (a lot of) Time
- Increasing complexity with advanced features
- Maintainability

Mindful Resource Management

- Cost of Tokens
- Optimize Interactions
- Monitor Usage

Questions?

Thank you!

More information

- Me | Pieter Nijs
- Work | https://xebia.com/digital-transformation/microsoft-services/
- LinkedIn | https://www.linkedin.com/in/pieter-nijs
- Sources | https://github.com/PieEatingNinjas/copilot-semantickernel/tree/demo
- Blog | https://blog.pieeatingninjas.be

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