



Ai
Is Amazing!

ANTHROPIC

Infusing AI into your .NET application with Semantic Kernel



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Bill Ayers

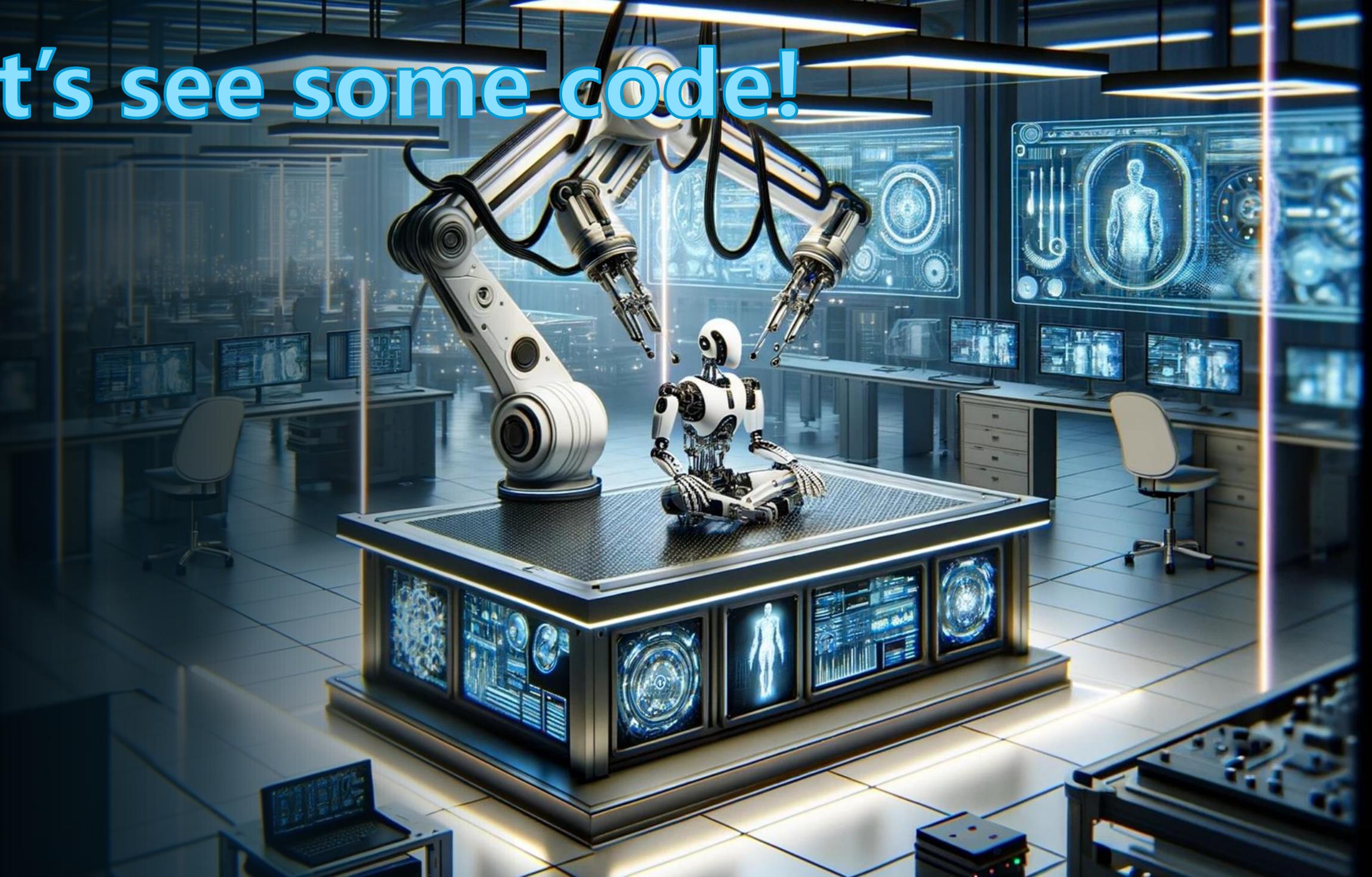
Flow Simulation Ltd | MCT | MCM | Microsoft M365 & AI MVP



Agenda

- ABC Semantic Kernel
- Concepts
- Agents
- Agentic AI

Let's see some code!



Concepts!



Concepts

101 Semantic Kernel

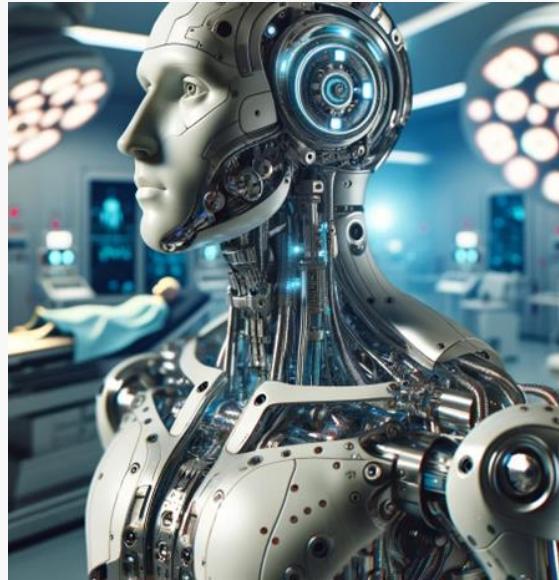
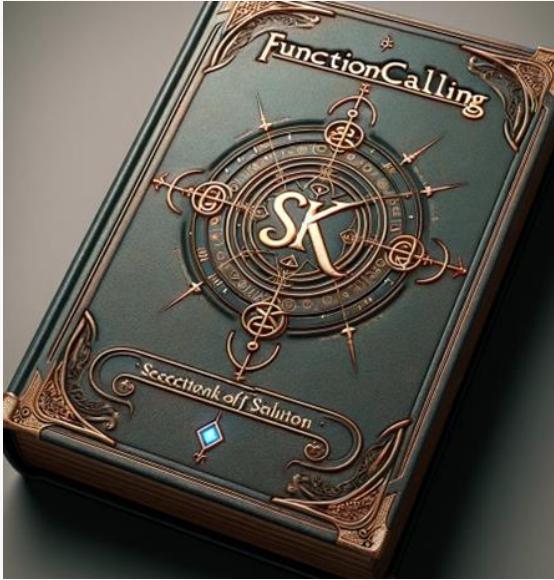
- AI Orchestration
- Plugins
- Prompt Functions
- Native Functions



Concepts

101 Semantic Kernel

- Planners
- Personas
- Agents



Plugins!

Without
“no idea”

With
“OK!”

C:\Users\josla\OneDrive\Sem... X + | - X

Hello, SK World!
Enter a message to send to the agent or type 'exit' to quit:
Que son los 5 hechos mas significativos que ocurrieron un dia como hoy hace 200 años?
assistant: (HistorianAgent) Lo siento, pero no tengo la capacidad de proporcionarte información en tiempo real o contextualizada a fechas específicas como hoy hace 200 años sin acceso directo a una base de datos actualizada o la capacidad de realizar una nueva investigación. Además, mi entrenamiento se basó en información disponible hasta septiembre de 2021, por lo tanto, no puedo generar o acceder a datos en tiempo real. Te sugiero consultar fuentes confiables o una base de datos histórica para obtener esa información.

Dame los tres hechos mas significativos que han ocurrido un dia como hoy en los anteriores 200 años que tengas conocimiento? se conciso y breve.

assistant: (HistorianAgent) Hasta la fecha de mi último entrenamiento, aquí hay tres hechos históricos significativos que ocurrieron el 14 de abril en los últimos 200 años:

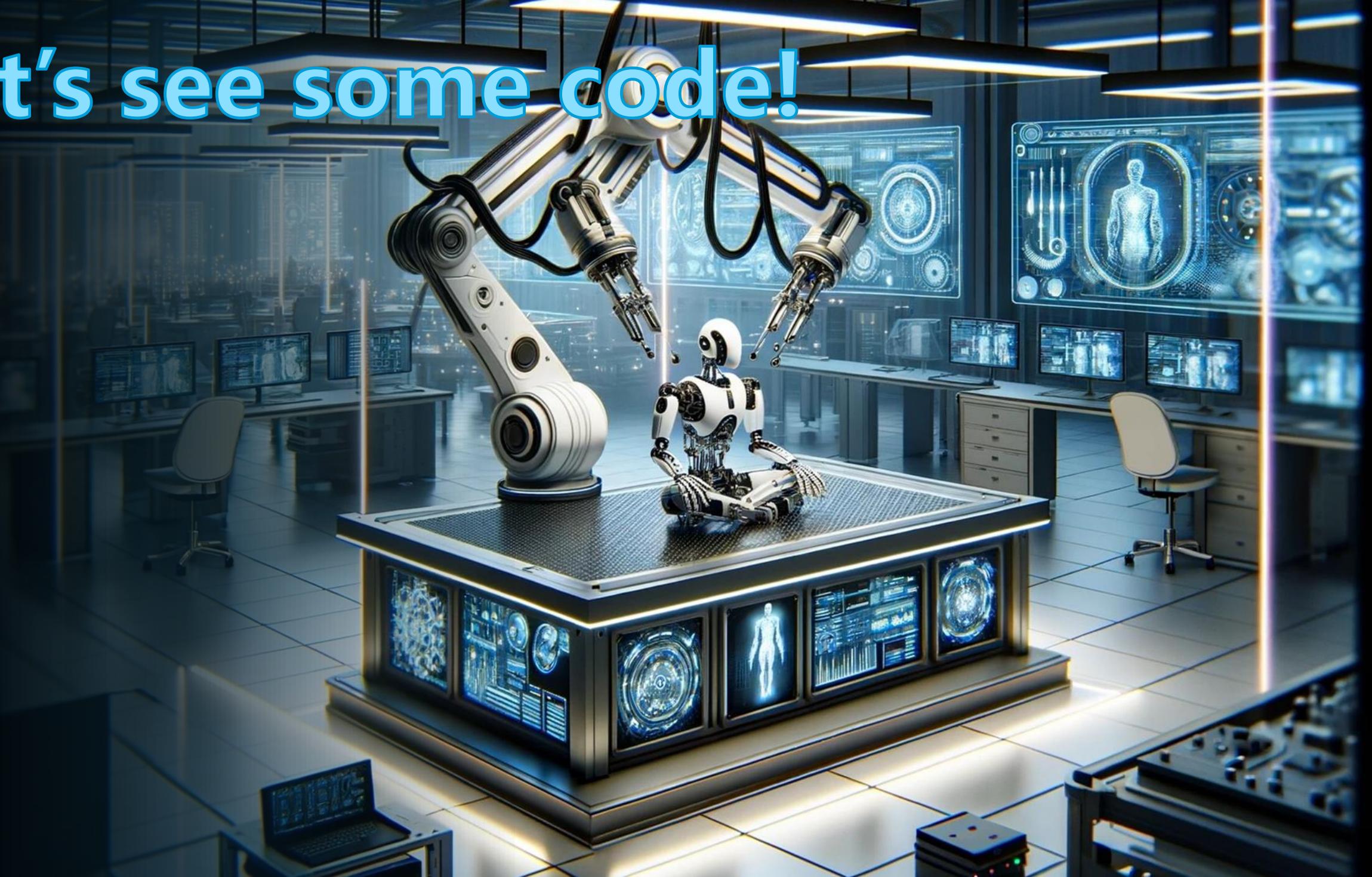
1. **RMS Titanic se hunde (1912):** El trasatlántico británico RMS Titanic chocó con un iceberg en su viaje inaugural desde Southampton, Inglaterra, a Nueva York, EE.UU., durante la noche del 14 de abril, hundiéndose en las primeras horas del 15 de abril. Más de 1,500 de los 2,224 pasajeros y tripulantes murieron, convirtiéndolo en uno de los desastres marítimos más mortíferos en tiempos de paz.

2. **Asesinato de Abraham Lincoln (1865):** El presidente de Estados Unidos, Abraham Lincoln, fue disparado por John Wilkes Booth en el Teatro Ford de Washington, D.C., el 14 de abril. Lincoln falleció a causa de sus heridas al día siguiente, convirtiéndose en el primer presidente de EE.UU. asesinado.

3. **Black Sunday de la Dust Bowl (1935):** Parte de la serie de tormentas de polvo que azotaron las llanuras estadounidenses, el Black Sunday el 14 de abril de 1935, fue una de las peores tormentas de polvo que afectó a la región durante la Dust Bowl. Levantó millones de toneladas de tierra, oscureciendo el cielo, y tuvo profundos efectos sociales y económicos en Estados Unidos.

Estos eventos son significativos por su impacto cultural, político o medioambiental a largo plazo.

Let's see some code!



Personas!

Ask: How would you solve a blackout in Avenger City due to a problem at the power plant?...



Hulk smash darkness!!



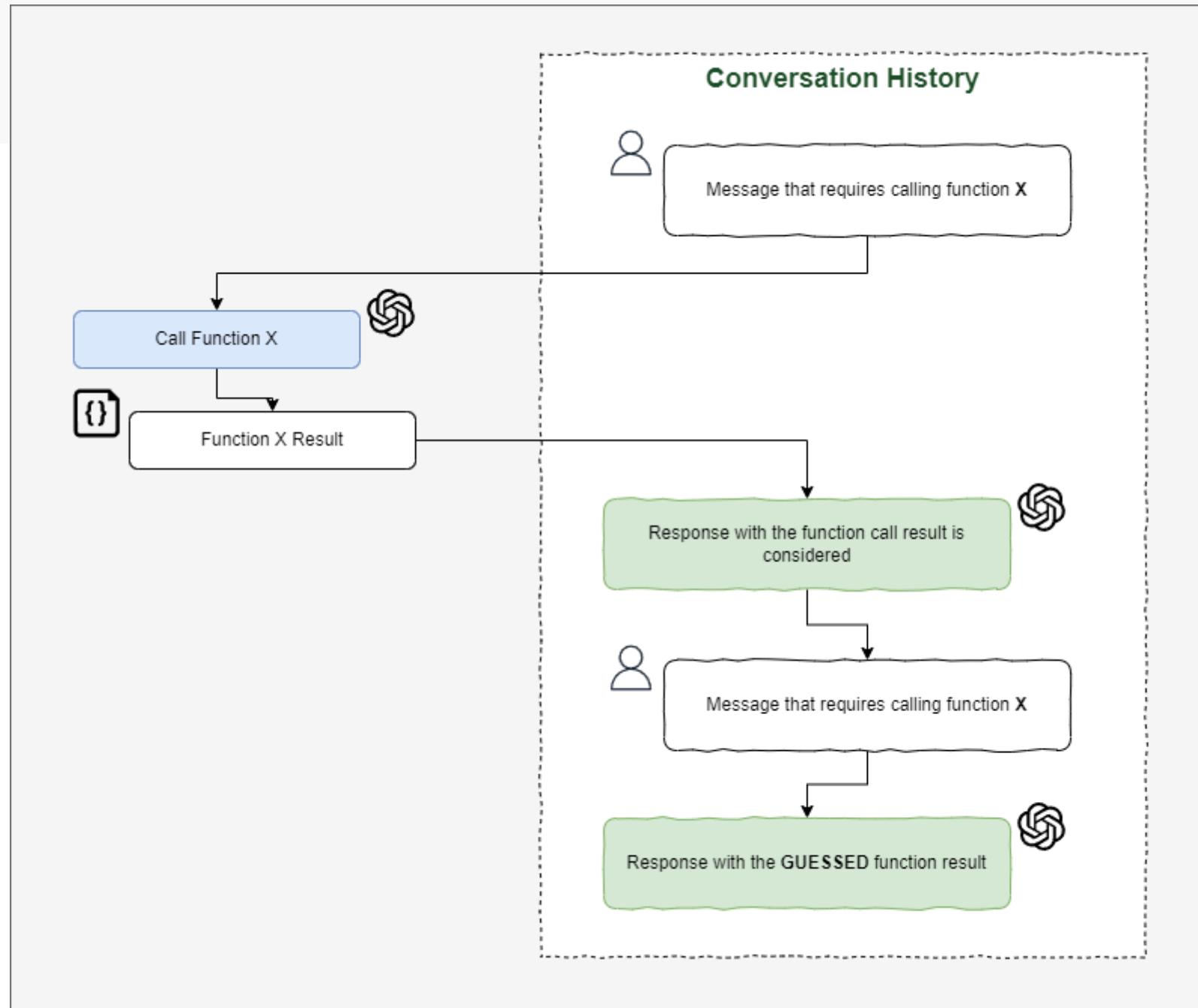
Do not worry! With Mjolnir, I will restore light to this city



Nothing that a genius, billionaire, playboy, and philanthropist can't handle with a bit of Stark Industries technology. I'm going to sync my suit with the power plant system, deploy a couple of miniaturized Arc reactors to stabilize the grid, and, of course, upgrade the system to ensure this doesn't happen again. Give me a few minutes... and get ready to see how modern magic is done. And someone bring me a coffee while I save the city, please!

Planners

- We have planners but mostly, “Function Calling” works
- <https://platform.openai.com/docs/guides/function-calling>



Agents!

Planner

tool

Single Eye

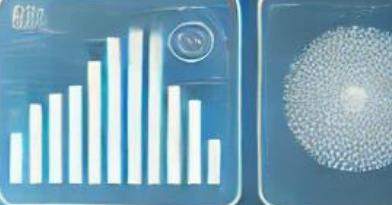
Use Tools



Use Humans

Autonomous AI
Environment - Actions

AL AUTONOME

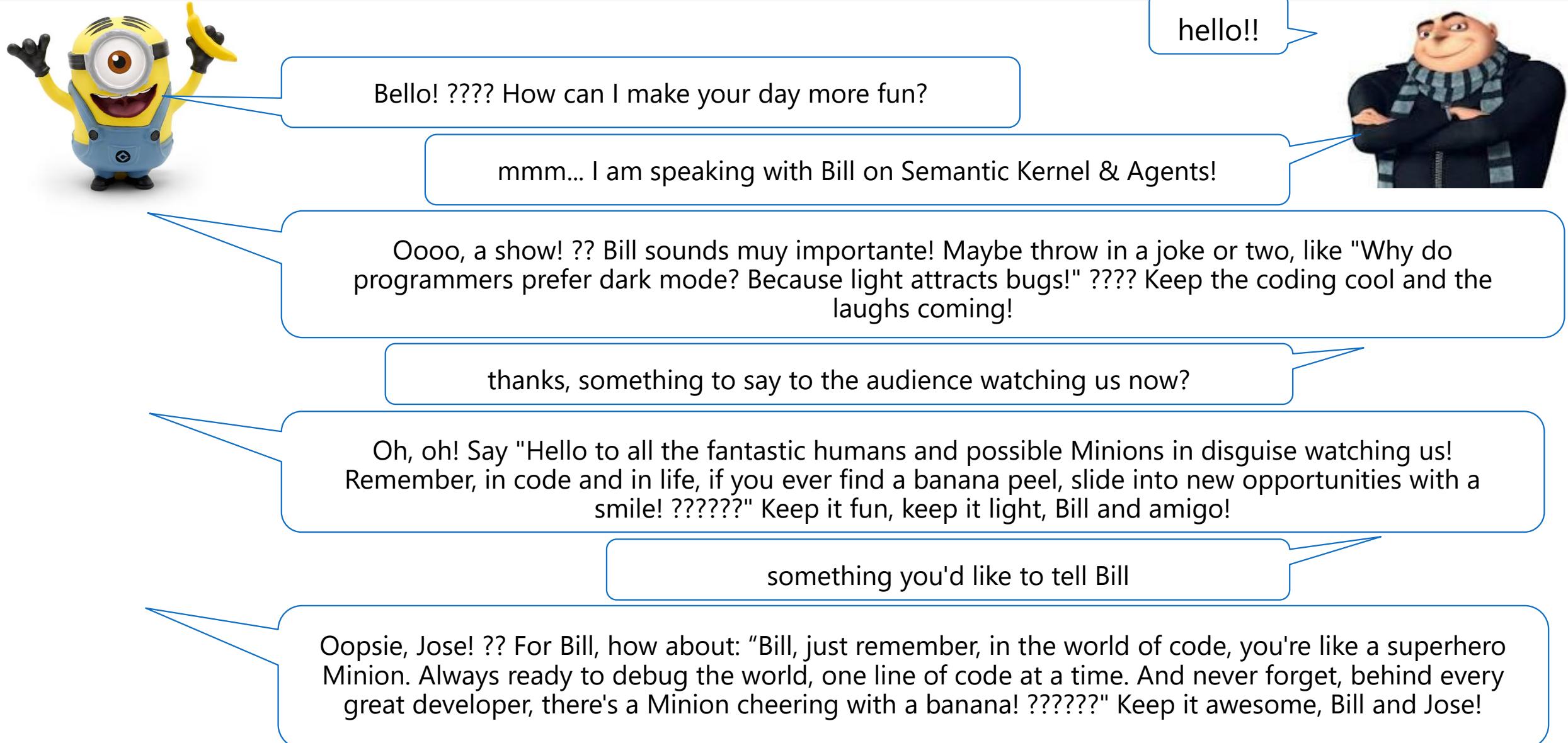


Adachanet AI
Technology

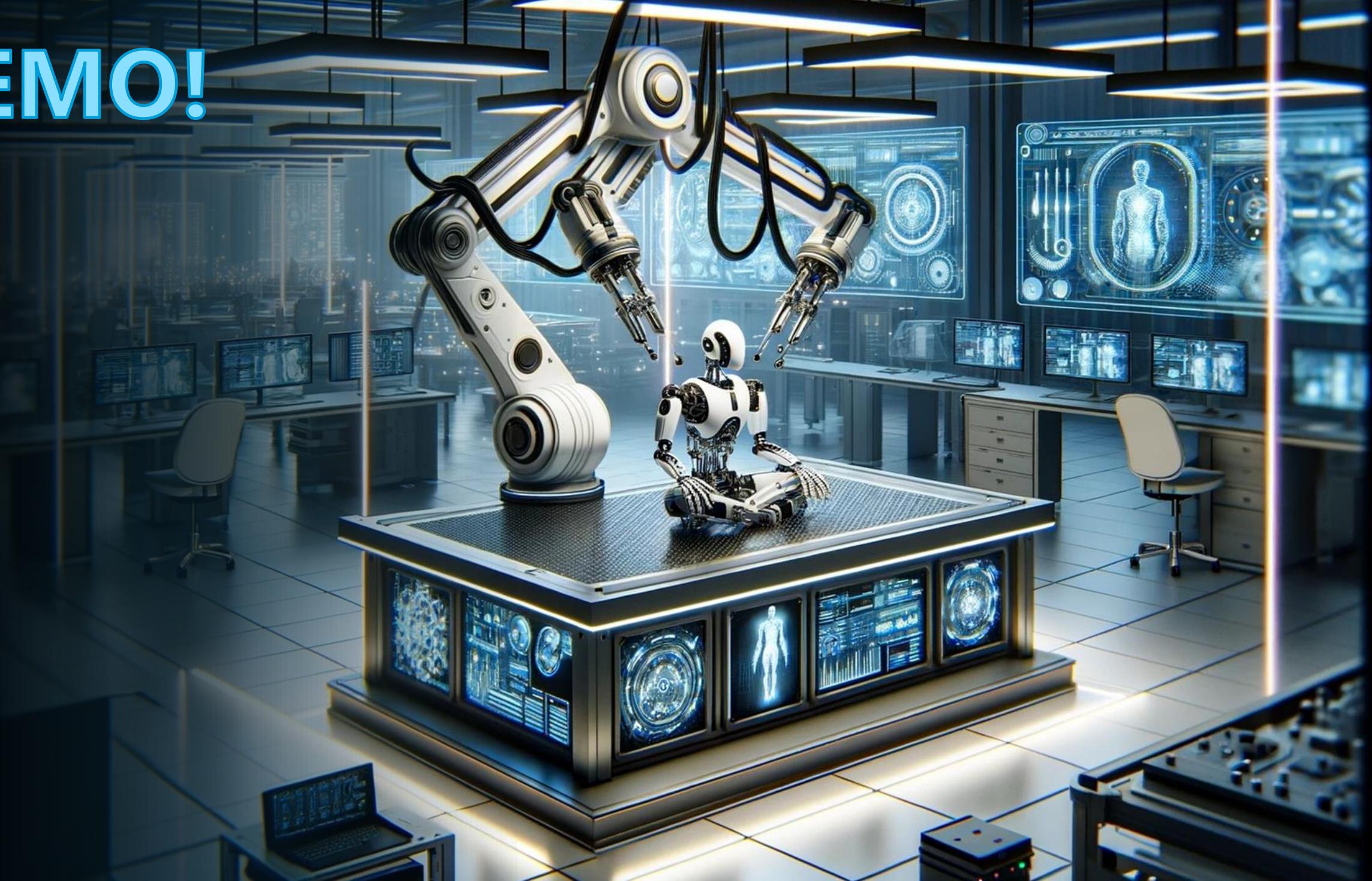


EQUATIONS

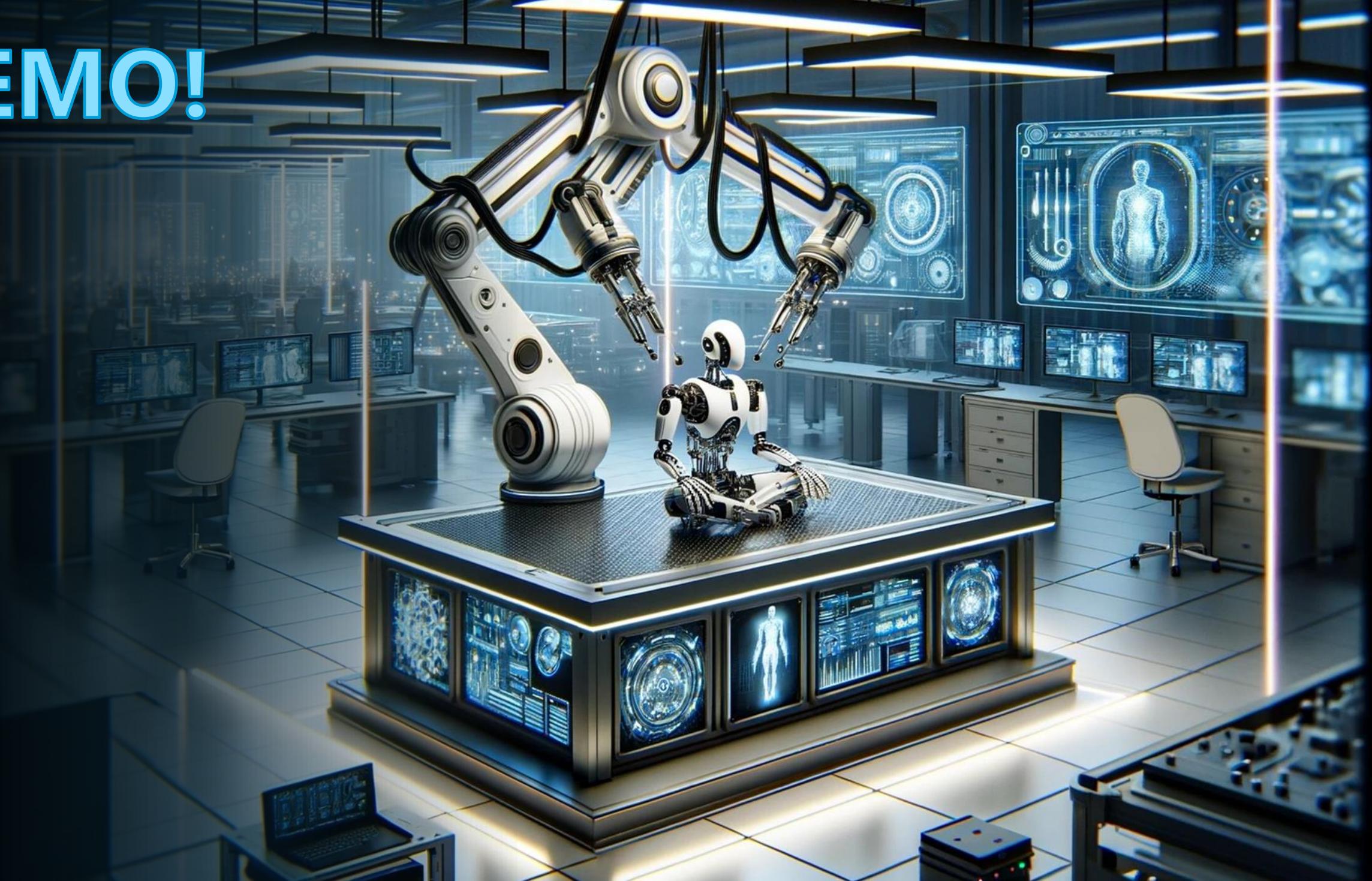
Agents have a Persona!



DEMO!



DEMO!





Agentic AI!

Usual usage vs Agentic

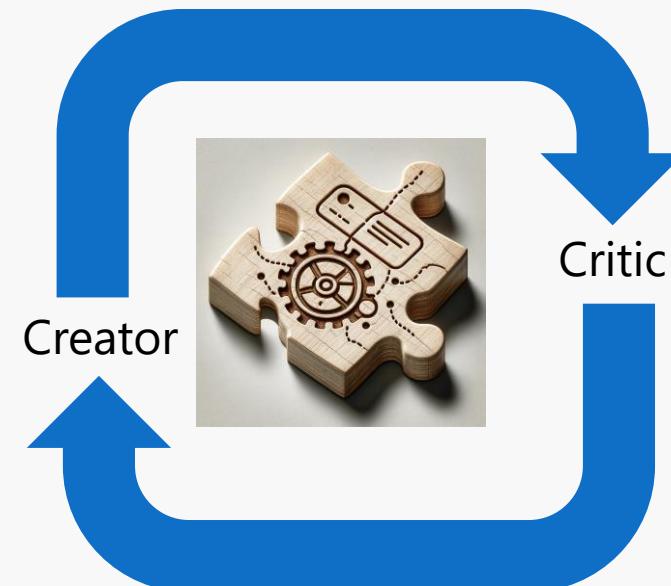
Usual Workflow

Please write me a blog post entry about .NET day for LinkedIn in one go.



Agentic Workflow

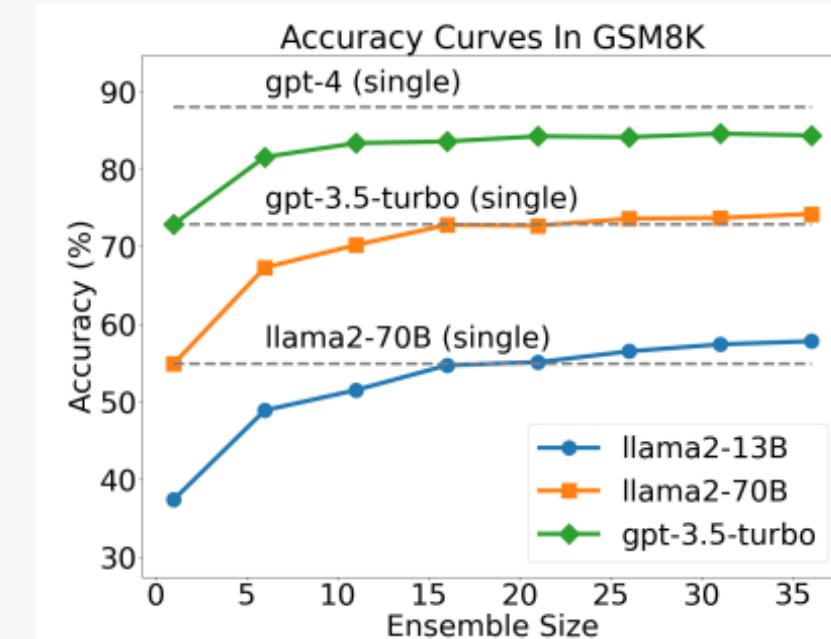
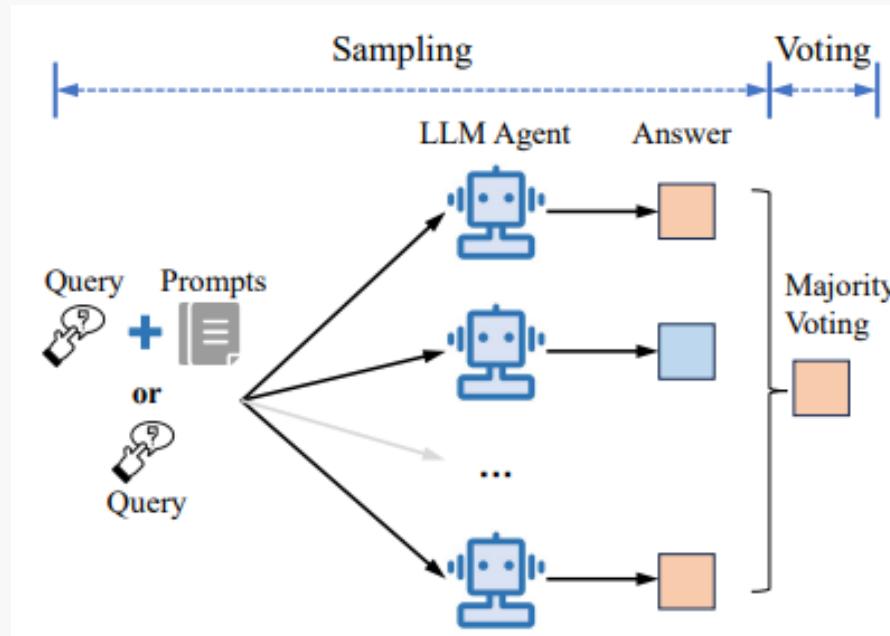
- Please write me a blog post entry about .NET day
- Need more information.
- Write the starting draft
- Consider what areas need revision
- Review for style
- Etc...



Papers, papers, papers...

More Agents is all you need

"sampling-and-voting method, the performance of large language models (LLMs) scales with the number of agents instantiated". <https://arxiv.org/abs/2402.05120>



GPT-3.5 and GPT-4 performance using zero-shot and agent workflows



Source: Andy Ng

Performance of GPT-3.5 and GPT-4 (zero-shot) on HumanEval, along with algorithms that use agent workflows on top of GPT-3.5 or GPT-4. Thanks to Joaquin Dominguez and John Santerre for help with this analysis.

"In the future, AIs are going to be like employees in our companies"

Jensen Huang, CEO, NVIDIA

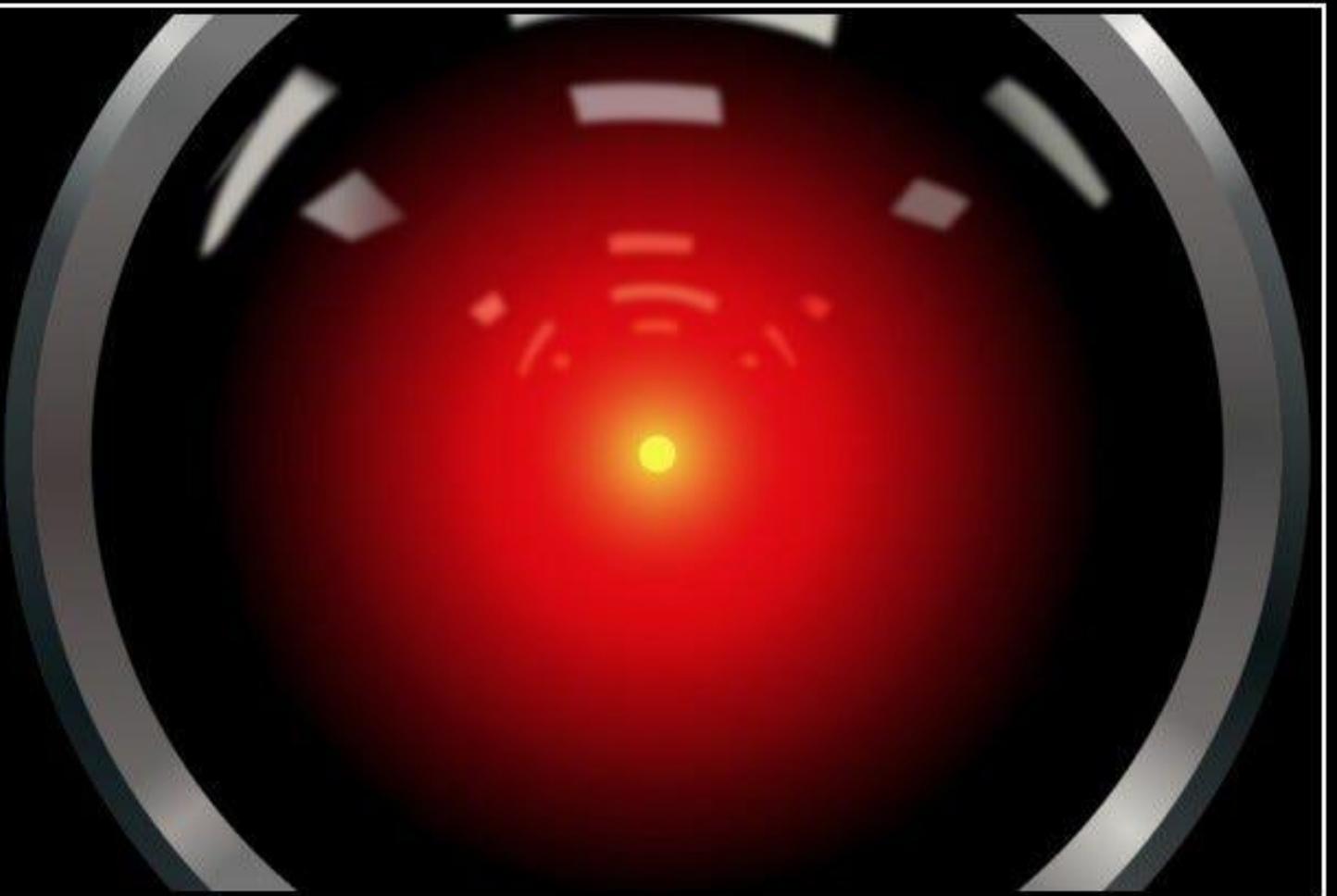
"Agents are not only going to change how everyone interacts with computers. They're also going to upend the software industry, bringing about the biggest revolution in computing since we went from typing commands to tapping on icons." - Bill Gates, Co-founder, Microsoft

"I think AI agentic workflows will drive massive AI progress this year — perhaps even more than the next generation of foundation models." - Andrew Ng, CEO, DeepLearning

"In terms of AI technology trends, I think for any builder, anyone building AI, if I had to pick one thing to keep an eye on, I would say it's AI agents." - Andrew Ng, CEO, DeepLearning

"AI agents are poised to become the next step of evolution of AI for businesses in our increasingly digital society," - Lionel Sujay Vailshery, Statista

"...the technology is moving from thought to action," - McKinsey, Why agents are the next frontier of generative AI



I'M SORRY, DAVE.

I'm afraid I can't do that.

Recap & Take-Away

- We have seen Semantic Kernel a bit on Agentic AI
- Semantic Kernel is powerful and evolving fast!
- AI is getting better fast – so get to learn
- Change your mindset, our software now reasons and acts

NOW

START NOW

LEARN
GENERATIVE
COMPONENTS
AI AGENTS

MANAGE
AGENT
AI AGENTS

CLOUD
ENGINEERING

CLOUD
ENGINEERING

CLOUD
ENGINEERINGS
AI

PROMPT
ENGINEERING

AGETIC
AGIT

AGENT

CODING
KNOWLEDGE
PROMPT KNOWWEEDING

Start Learning now!

START AS SOONI AS POSSIBLE
TO STAY AHAD



Thank You!!

Connecting & Continuing the journey

- Contact Bill

- <https://www.linkedin.com/in/billayers/>
- <https://x.com/SPDoctor>
- <https://github.com/SPDoctor>

- Contact José

- <https://www.linkedin.com/in/joslat/>
- <https://x.com/joslat>
- <https://github.com/joslat/>

- Resources

- github.com/joslat/SemanticKernelAndAzureAI
- learn.microsoft.com/en-us/semantic-kernel/overview/
- learn.microsoft.com/en-us/training/paths/develop-ai-agents-azure-open-ai-semantic-kernel-sdk/
- linkedin.com/learning/semantic-kernel-in-action-fundamentals



Questions?