



MEO AI Training Program

▶ **FROM PROMPTS TO POLICY**

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AI for Municipalities: From Prompts to Policy

- Intro to AI: History of AI and key terms
- Why Use AI?
- How does AI work?
 - LLMs
 - Generative AI
 - Prompting
- Microsoft CoPilot Review and Live Demos
- Class Activity: Let's Write a Grant Proposal!
- AI Implementation Steps
- AI Governance Overview
- Questions and Answers



Fun with AI – Icebreaker Activity

LET'S USE AI TO...



Create image of a
{name an animal}
playing
{name a sport}
while playing
{name an instrument}
wearing a
{name a sports team}
jersey

The Digital Revolution



- ▶ The digital revolution started in the **1940s-1950s** with the term "Artificial Intelligence" coined at a conference at Dartmouth College, beginning research into machine learning and AI.
- ▶ The ARPANET (precursor to the Internet) was created in the **1960s**, connecting four university computers and allowing them to share data over long distances.
- ▶ In the **1970s**, ethernet is invented by creating the foundation for local area networking (LAN).

The Digital Revolution



- ▶ In the **1980s**, Microsoft Windows is released marking the beginning of widespread personal computing adoption.
- ▶ In the **1990s**, the World Wide Web goes public, revolutionizing how people access and share information globally.
- ▶ The **2000s** saw the rise of mobile revolution and social media, with the release of the iPhone marking the beginning of the smartphone era.

The Digital Revolution



- ▶ AI became mainstream in the **2010s**, with technologies like voice assistants becoming widely adopted.
- ▶ The **2020s** are expected to see significant advances in natural language processing and automation with the prominence of AI applications.

What's the hype?



“The development of AI is as fundamental as the creation of the microprocessor, the personal computer, the Internet, and the mobile phone. It will **change the way people work**, learn, travel, get health care, and communicate with each other.”

Bill Gates



“...we really are on the edge of probably the **biggest technology revolution that has ever existed...**”

Elon Musk

What's the hype?



- ▶ Automation & AI are set to transform the workforce across industries, just as **power tools revolutionized construction.**
- ▶ The future of work won't be about humans versus AI & Automation, but rather **humans empowered by AI & Automation.**

Levels of AI

EVOLUTIONARY STAGES

- ▶ **Narrow/Weak AI:** this is also nothing new, this would be something like a chatbot with specific questions and pre-set responses (i.e. if-then). In the 1970s and 1980s, early AI included systems that used if-then rules to mimic decision-making.
- ▶ **Foundational Models:** Technically fall under the narrow/weak AI category but emerging as a middle ground between Narrow/Weak AI and AGI.
- ▶ **Artificial General Intelligence (AGI):** AGI refers to an AI system capable of performing any intellectual task a human can do, across a broad range of domains, with human-like flexibility.
- ▶ **Artificial Superintelligence (ASI):** Exceeds human intelligence: Not just human-level, but massively beyond in every aspect: reasoning, creativity, problem-solving.

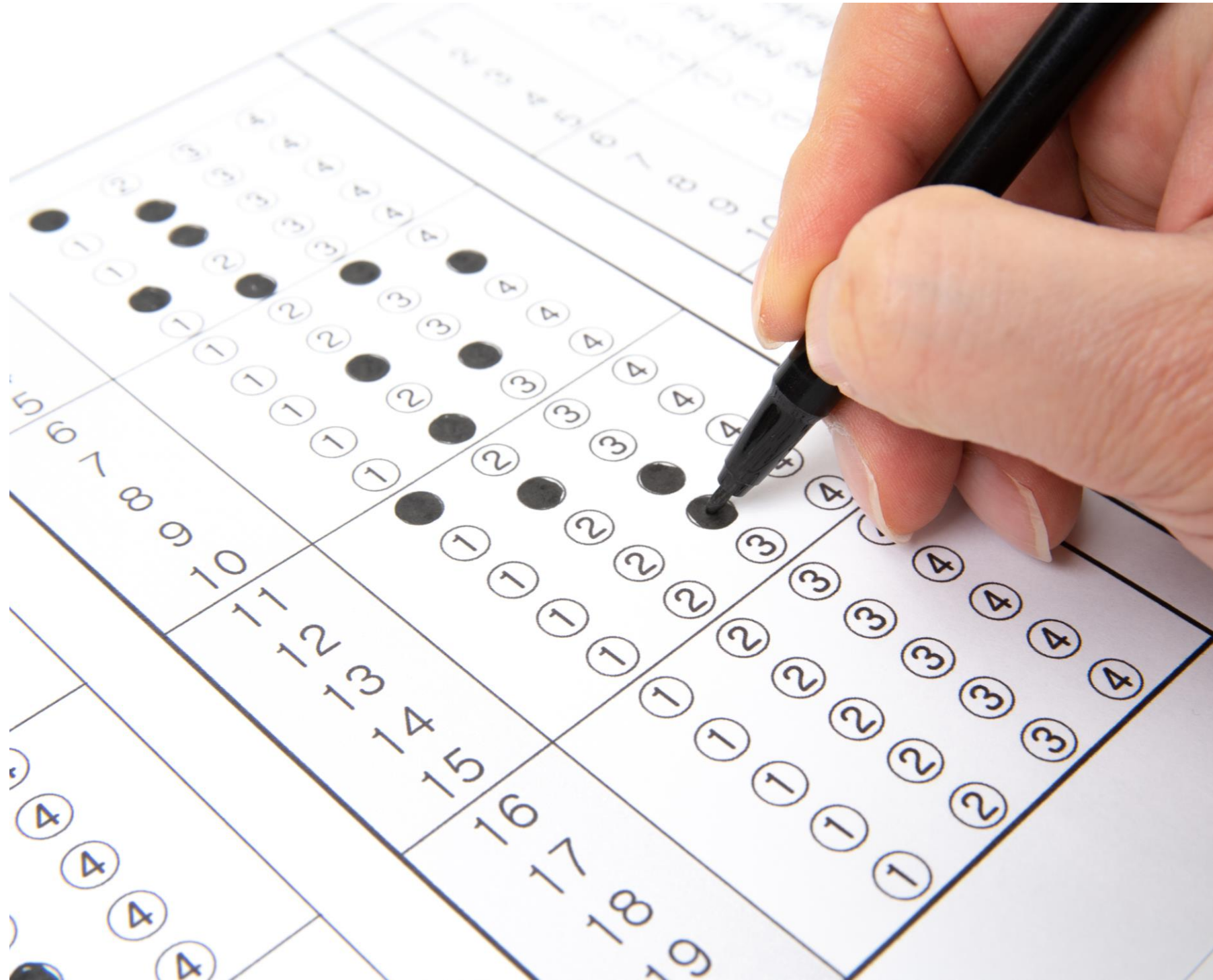




- ▶ If AI could take one dreaded repetitive task off your plate, which would it be – emails, data entry, or taking notes in meetings?



- ▶ Save Time
 - ▶ Automate repetitive tasks (data entry, scheduling, summarizing emails)
 - ▶ Generate drafts, reports, or presentations instantly



Improve Accuracy

- ▶ Reduce human error in calculations, compliance checks, or document review
- ▶ Analyze large datasets for trends or anomalies faster and more precisely



Make Better Decisions

- ▶ Use predictive analytics and forecasting models to inform strategy
- ▶ Quickly gather insights from customer feedback, reports, or market data



Enhance Creativity

- ▶ Get new ideas or approaches for writing, design, or problem-solving
- ▶ Brainstorm faster with AI as a **collaborative thinking partner**

AI terms



▶ **HOW DOES AI WORK?**



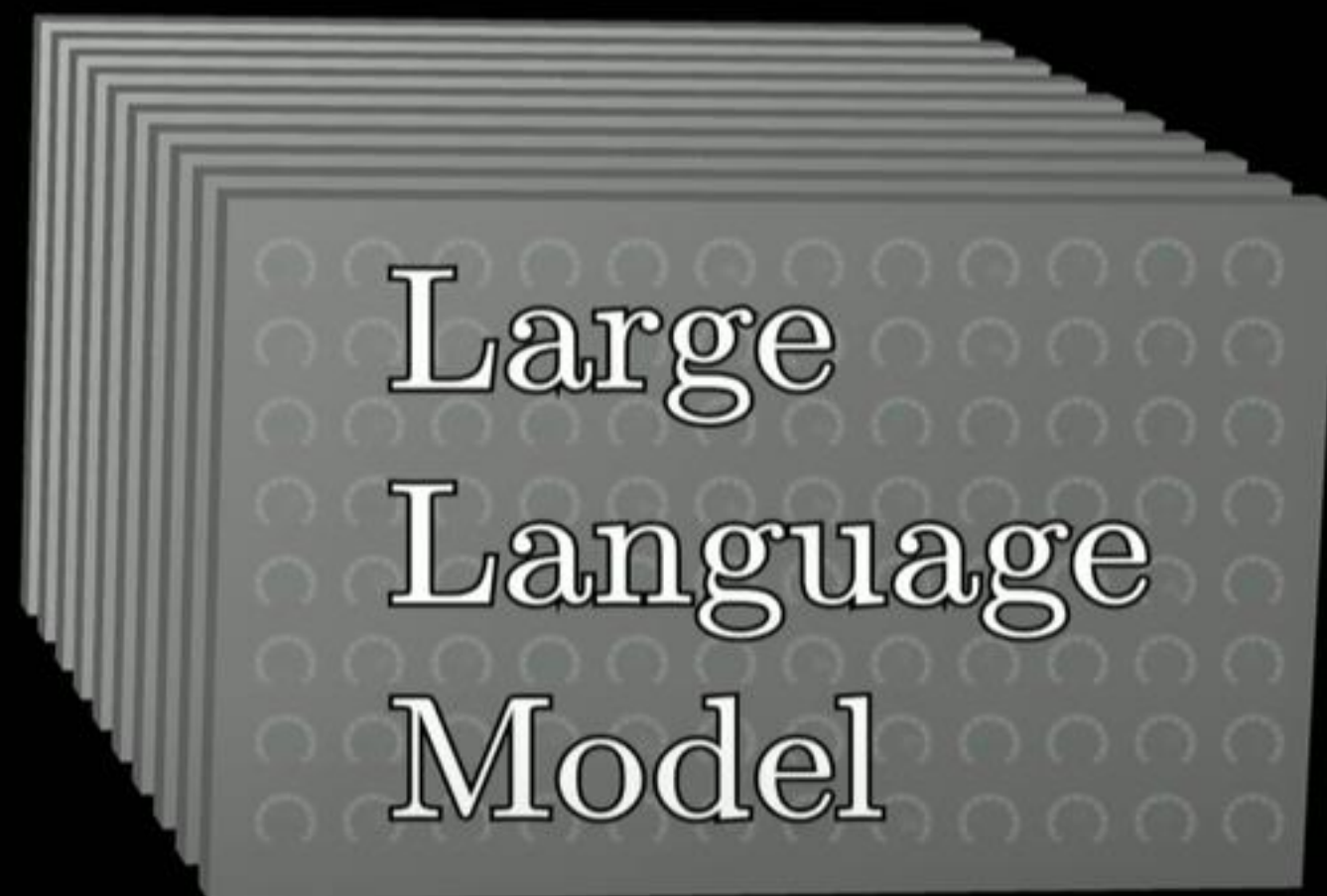
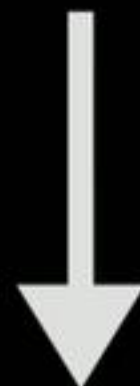
What are Large Language Models?

LLMS DEFINED

- ▶ An LLM is a sophisticated mathematical function designed to predict what word comes next for any piece of text you give it.
 - ▶ Type of Machine Learning Model designed to process natural language tasks
- ▶ Instead of just picking one word, it figures out the probability for all possible next words.



Paris is a city in _____



France	17%
and	15%
the	9%
Logan	7%
which	4%
Henry	3%
northern	3%
central	2%
northeastern	2%
Paris	1%
Texas	1%

LLMs Examined

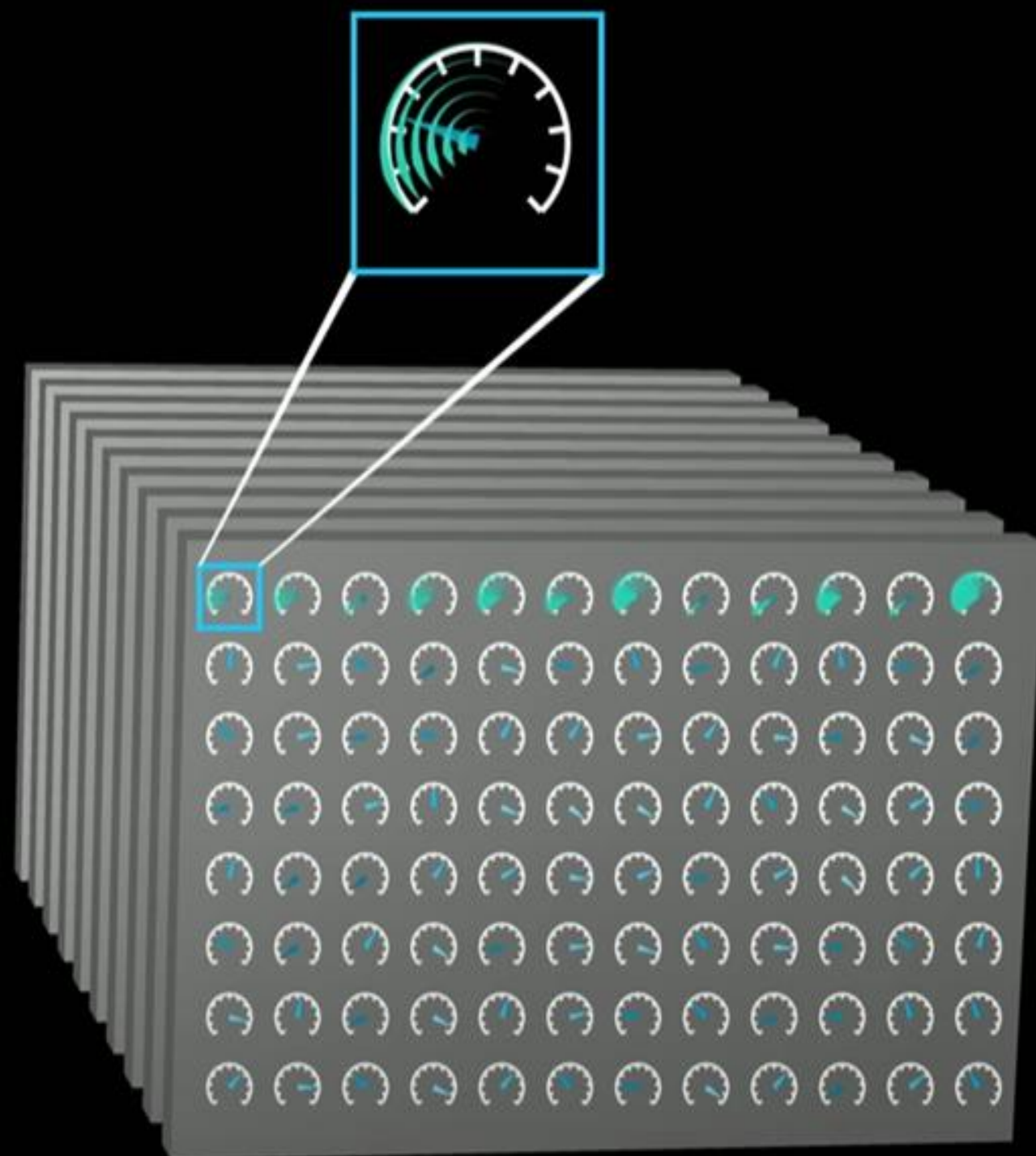
THE LARGE PART

- ▶ The "large" in LLM refers to the hundreds of billions of "parameters" or "weights" that control its behavior.
- ▶ Think of these as countless tiny dials on a giant machine. No human sets these dials directly; they start randomly.



Parameter / Weight

It was the best
of times it was
the _____



worst		57%
age		25%
worse		6%
best		5%
most		1%
end		1%
very		1%
blur		0%
⋮		

How LLMs Learn

TRAINING

- ▶ Initial Learning (Pre-training): LLMs learn by reading an enormous amount of text, mostly from the internet.
 - ▶ For example, the text used to train GPT-3 would take a human over 2,600 years to read non-stop. During this phase, the model's billions of "dials" (parameters) are adjusted. It learns by guessing the next word in a passage and then tweaking its dials to get closer to the correct answer.
 - ▶ Probabilities can be changed using temperature
- ▶ After this initial learning, LLMs for chatbots go through an additional training step called Reinforcement Learning with Human Feedback (RLHF).
 - ▶ Here, human workers evaluate the model's responses, flagging unhelpful or problematic ones. This feedback helps further refine the model's parameters so it gives answers that users prefer.



The Brain

TRANSFORMER ARCHITECTURE

- ▶ A key innovation, called the Transformer, allows these models to "soak in" all the text at once, in parallel.
- ▶ Words are turned into long lists of numbers for the computer to understand.
- ▶ A special operation called "attention" lets these numerical representations of words "talk to each other" to understand their meaning in context
- ▶ (e.g., whether "bank" refers to a financial institution or a riverbank).



Down

by

the

river

bank

...

until

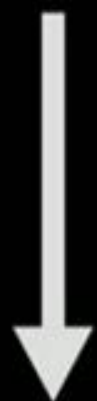
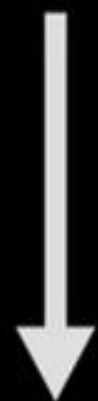
they

jumped

into

the

???



???

+1.0

+5.8

+9.5

-4.7

-2.8

-6.8

+9.4

-3.6

-3.6

+3.5

+4.3

+0.6

+5.9

+5.4

-1.2

-7.7

-0.6

-1.7

+3.3

-4.6

+2.0

+1.3

-0.8

-0.9

+3.9

+3.1

+9.4

-8.6

-7.3

+4.7

+0.9

+8.4

+5.6

+1.4

-8.7

-7.2

+2.1

+3.8

+4.3

+9.2

-1.5

-8.5

-7.6

-9.5

+3.3

...

-6.0

+4.7

+1.3

-4.2

-5.0

+2.9

-8.2

+2.8

+2.3

+3.4

-2.6

-9.1

-4.6

-6.3

+1.5

-1.2

-9.5

-7.1

+2.2

-5.7

+6.4

-4.3

+0.5

+1.7

+1.8

+7.8

+6.6

+8.8

+2.3

-7.3

-8.0

-7.5

-8.0

-9.5

+1.4

⋮

⋮

⋮

⋮

⋮

⋮

⋮

⋮

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⋮

-2.3

+7.3

-1.7

+3.6

-2.7

-8.0

-7.5

+8.5

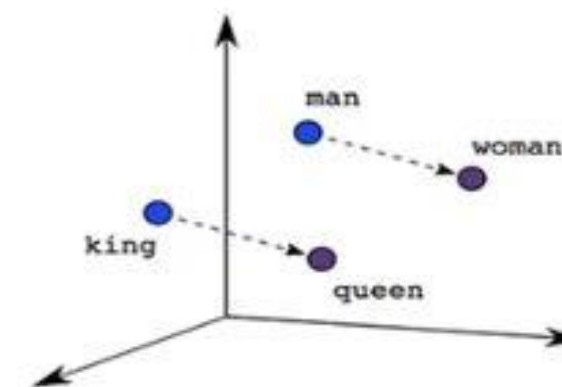
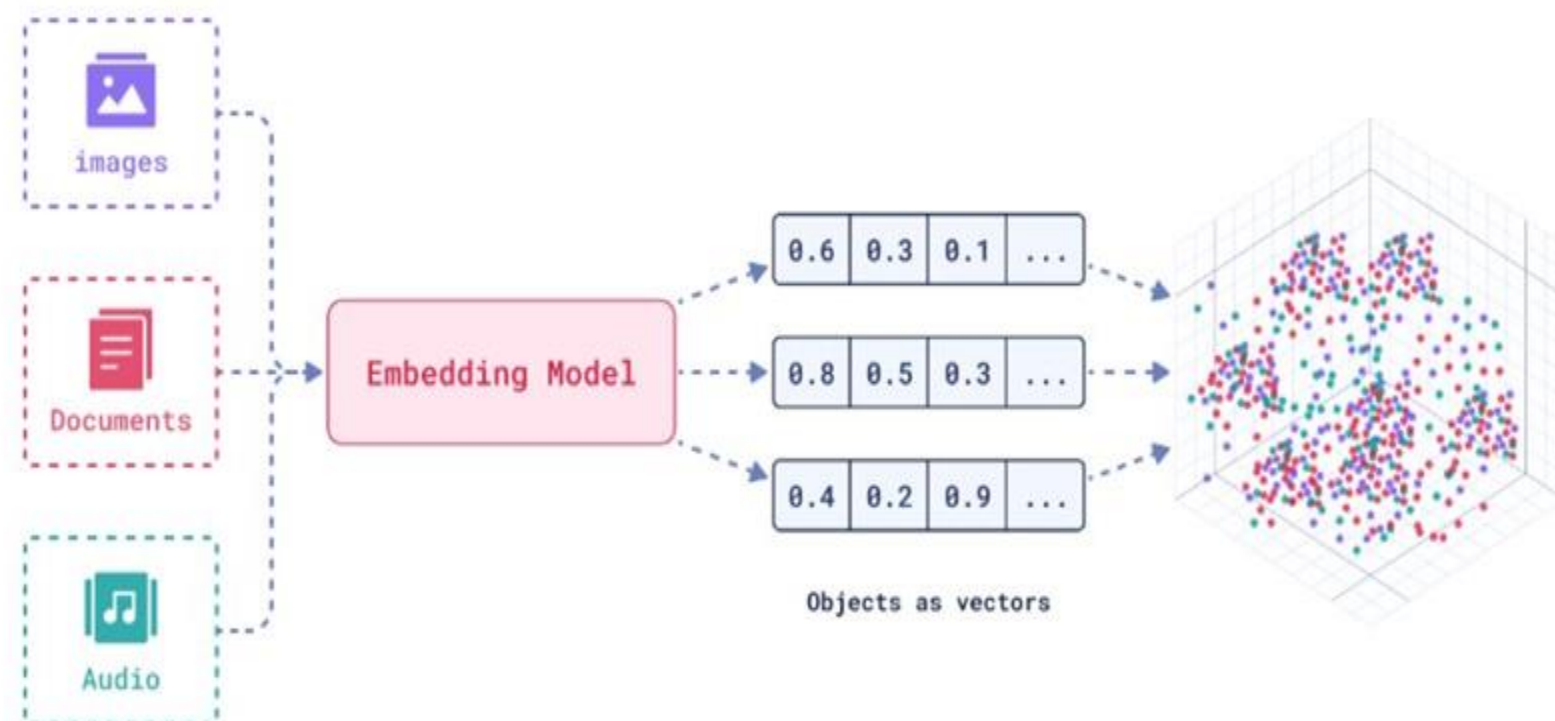
-9.8

+9.0

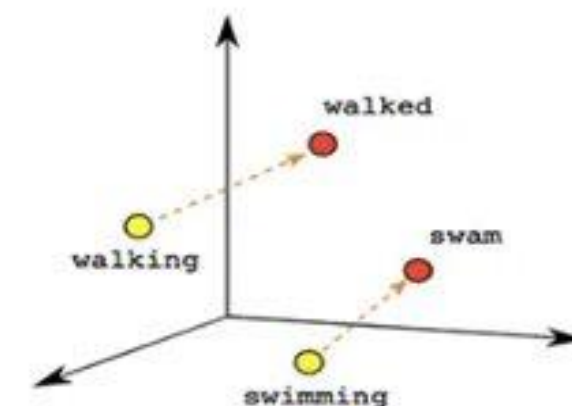
The Outcome

TRANSFORMER ARCHITECTURE

- ▶ The specific behavior of an LLM is an emergent phenomenon based on how its billions of parameters are tuned.
- ▶ This means it's extremely difficult to know exactly why an LLM makes a particular prediction.
- ▶ However, the text they generate is uncannily fluent, fascinating, and incredibly useful.



Male-Female



Verb Tense

What is Generative AI?



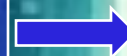
Definition - Generative AI (GenAI) is a general term for artificial intelligence that creates new content by generating new data samples that are similar to the training set. These generative models learn patterns, structures, and features from the input data and can create content with similar characteristics.

- Capable of producing various types of content: text, images, audio, video, and more
- Uses deep learning techniques
- Operates on prompts, generating novel outputs based on user input
- Applications include media creation, product development, and design
- Relies on foundation models trained on broad, unlabeled data

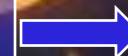


Differences between LLMs and Generative AI

Scope: LLMs focus specifically on language tasks, while generative AI encompasses a broader range of content creation



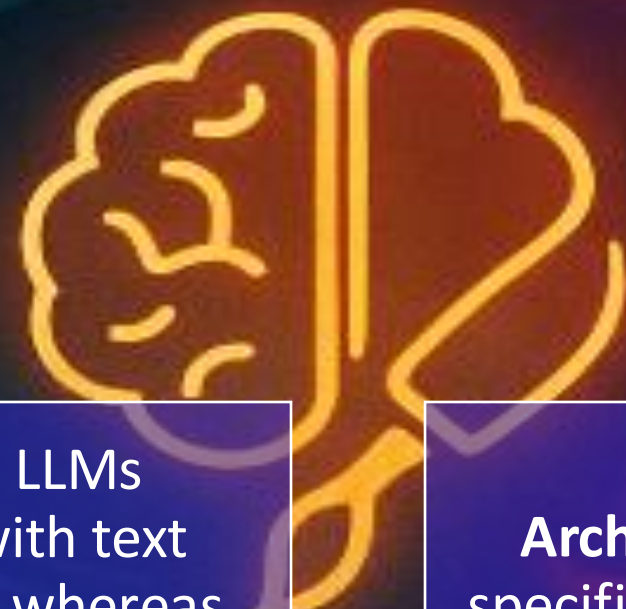
Input/Output: LLMs primarily work with text input and output, whereas generative AI can handle and produce various data types (text, images, audio, etc.)



Architecture: LLMs are a specific type of generative AI model, while generative AI includes other architectures



Applications: LLMs are used mainly for language-related tasks, while generative AI has wider applications in creative fields and problem-solving.



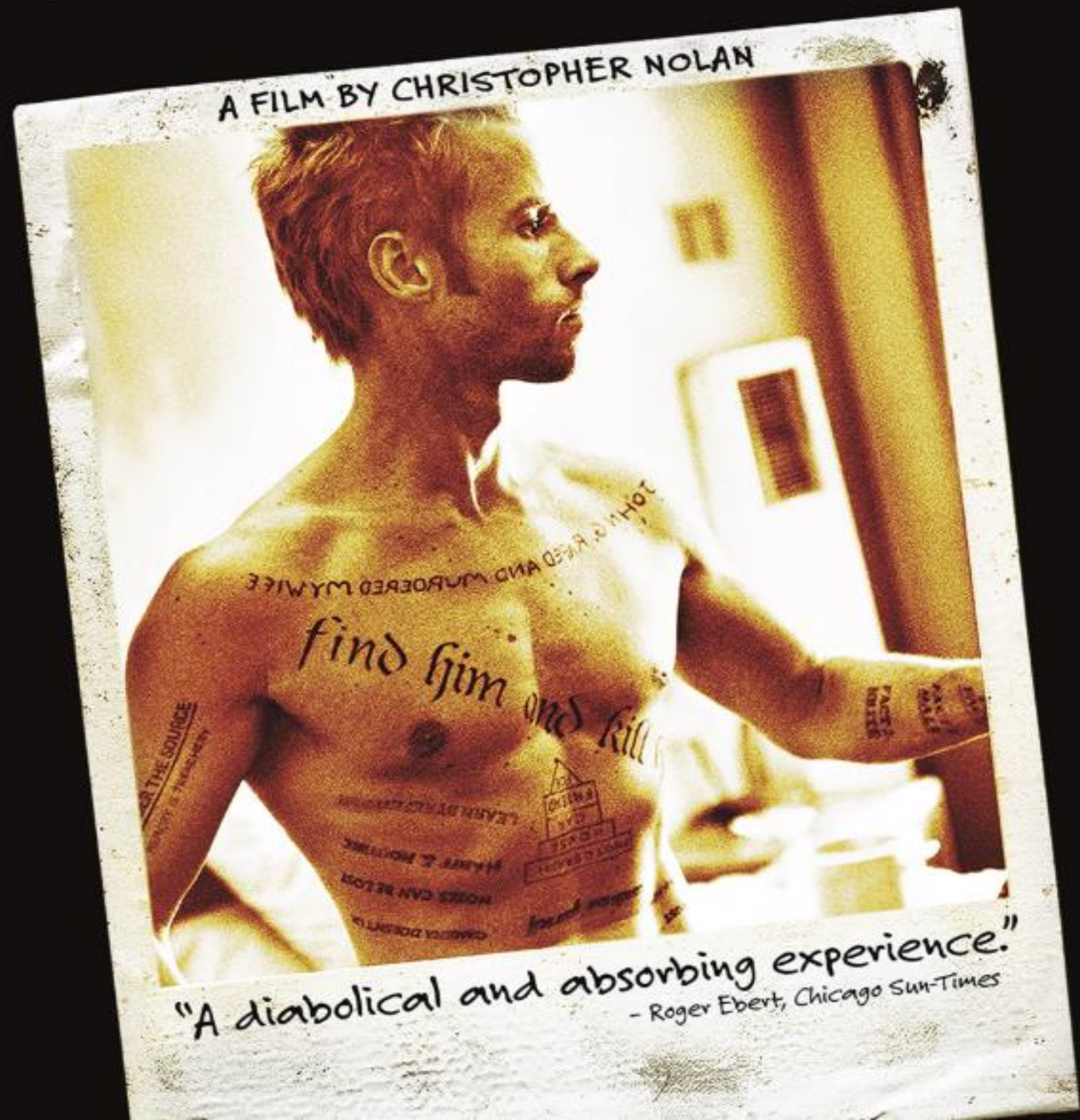
Prompting AI



▶ **GOOD PROMPTING = GOOD COMMUNICATION**

GUY PEARCE CARRIE-ANNE MOSS JOE PANTOLIANO

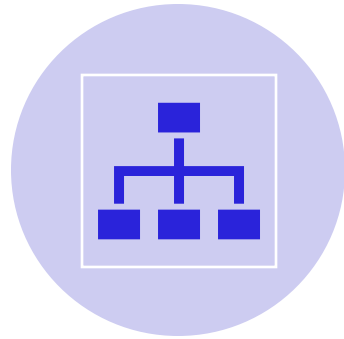
MEMENTO



50 FIRST DATES



Prompt Engineering



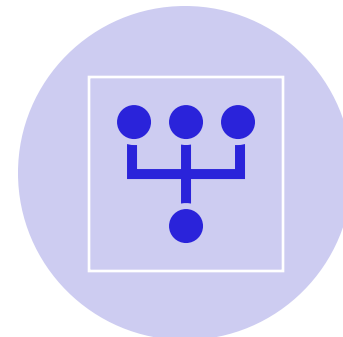
Assign a Role: Clearly define the AI's role to provide context.



Provide Context: Give specific details and requirements.



Step-by-Step & Verification: Request AI to outline its reasoning and verify its own results.



Divide and Conquer: Break down complex tasks into smaller, manageable subtasks.



Reference & External Tools: Provide relevant data and leverage specialized tools when appropriate.



Input = Output: The quality of your prompt directly impacts the quality of AI's response.

Prompting the Reasoning Models

Keep it Simple	Avoid CoT	Use delimiters	Limit context
<p>Keep prompts simple and direct and do not guide the model too much because it understands instructions well</p>	<p>Avoid chain of thought prompts since o1 models already reasons internally</p>	<p>Use delimiters like triple quotation marks, XML tags and section titles so the model can get clarity on which sections it is interpreting</p>	<p>Limit additional context for retrieval augmented generation (RAG). Adding more context or documents when using the models for RAG tasks could overcomplicate its response.</p>



Types of Prompts

- ▶ Zero Shot
- ▶ Few Shot
- ▶ Chain of Thought
- ▶ Tree of Thought
- ▶ Self Consistency
- ▶ General Knowledge
- ▶ Retrieval Augmented
- ▶ Automatic Reasoning and Tool Use
- ▶ Active
- ▶ Directional Stimulus
- ▶ Program Aided
- ▶ ReAct
- ▶ Multimodal CoT
- ▶ Graph
- ▶ Medprompt
- ▶ And more....resources here: www.promptingguide.ai/techniques

Chain-of-Thought (CoT) Prompting

Standard Prompting

Model Input

Q: Roger has 5 tennis balls. He buys 2 more cans of tennis balls. Each can has 3 tennis balls. How many tennis balls does he have now?

A: The answer is 11.

Q: The cafeteria had 23 apples. If they used 20 to make lunch and bought 6 more, how many apples do they have?

Model Output

A: The answer is 27. ❌

Chain-of-Thought Prompting

Model Input

Q: Roger has 5 tennis balls. He buys 2 more cans of tennis balls. Each can has 3 tennis balls. How many tennis balls does he have now?

A: Roger started with 5 balls. 2 cans of 3 tennis balls each is 6 tennis balls. $5 + 6 = 11$. The answer is 11.

Q: The cafeteria had 23 apples. If they used 20 to make lunch and bought 6 more, how many apples do they have?

Model Output

A: The cafeteria had 23 apples originally. They used 20 to make lunch. So they had $23 - 20 = 3$. They bought 6 more apples, so they have $3 + 6 = 9$. The answer is 9. ✅

AI Prompting and Resources

- ▶ [Prompt Practice](#)
- ▶ [Resource #1](#)
- ▶ System Prompt verse User Prompt





Write MS Word Prompts with Copilot chat:

- ▶ Research and Synthesize in Copilot Chat
 - ▶ Aggregate complex regulatory or technical information
 - ▶ Understand specifics/details of the topic
- ▶ Translate into an MS Word Prompt to create document



Microsoft Word

- ▶ “Draft a policy summary for council review based on this full ordinance.”
- ▶ “Rewrite this public notice to be easier for residents to understand.”
- ▶ “Generate a briefing memo on affordable housing trends from this report.”
- ▶ “Compare this proposed resolution to the previous one passed in 2022.”



Use Case: Federal Grant Application

- ▶ **Copilot Chat:** analyze grant and quantify proposal requirements, conduct research (federal and state regulations, community impact analysis, budget estimates and timelines, analyze prior winning proposals, translate to MS Word prompt
- ▶ **MS Word:** Draft detailed proposal, incorporating all findings from the Copilot chat

Live Demonstration



▶ **COPILOT IN MS WORD AND COPILLOT CHAT**



Microsoft Excel

- ▶ “Analyze this budget to show year-over-year changes by department.”
- ▶ “Create a chart showing how grant funds were allocated by category.”
- ▶ “Highlight departments that exceeded their budget limits.”
- ▶ “Identify trends in service request volumes over the last 12 months.”

Live Demonstration



▶ **COPILOT IN MS EXCEL**



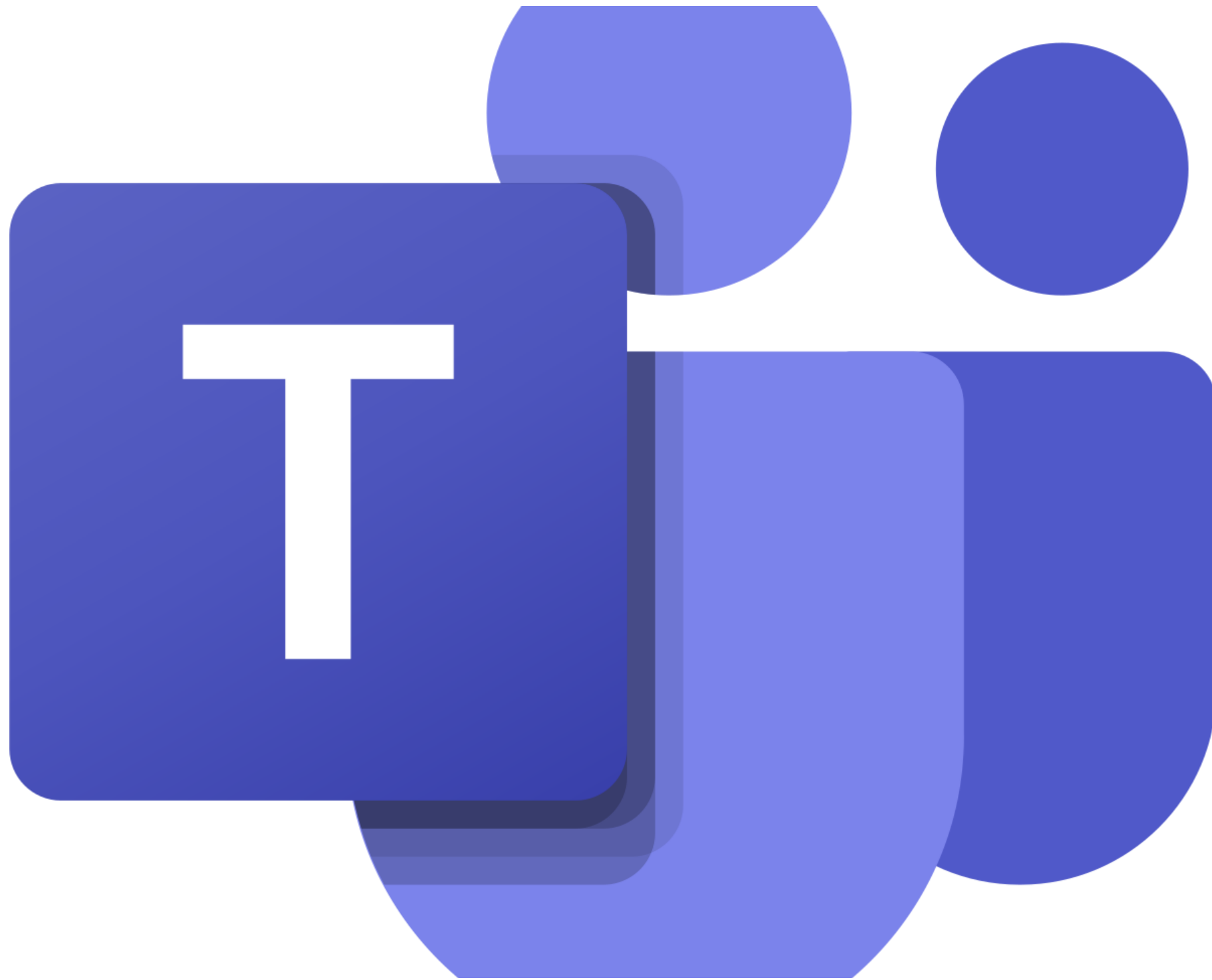
Microsoft Outlook

- ▶ “Draft a response to a constituent complaint about road conditions.”
- ▶ “Summarize this multi-thread email conversation into a single paragraph.”
- ▶ “Schedule a meeting with department heads about the stormwater project.”
- ▶ “Create a reminder to follow up with the state agency next week.”

Live Demonstration



▶ **COPILOT IN MS OUTLOOK**



Microsoft Teams

- ▶ “Summarize this council meeting transcript into key decisions made.”
- ▶ “What were the top three concerns raised during the community planning session?”
- ▶ “List all action items assigned to the economic development team this month.”
- ▶ “Draft a summary of this chat to send to the City Manager.”

Live Demonstration



▶ **COPILOT IN MS TEAMS**



Microsoft PowerPoint

- ▶ “Create a 5-slide presentation on the annual parks budget using this Excel sheet.”
- ▶ “Build a presentation explaining the city's comprehensive plan update.”
- ▶ “Summarize the housing report into slides for a community town hall.”

Live Demonstration



▶ **COPILOT IN MS POWER POINT**



▶ Intermission



Class Activity



▶ **LET'S WRITE A GRANT PROPOSAL!**

AI Implementation Steps



▶ **HOW TO SAFELY IMPLEMENT ARTIFICIAL INTELLIGENCE**

AI Governance



▶ **HOW TO USE AI SAFELY**



Policy Examples



- **AI USE POLICIES**
- **AI GOVERNANCE HANDBOOK**
- ▶ **INCIDENT RESPONSE PLAN**
- **AI TRAINING ROADMAP**
- **NIST AI RMF DOCUMENTS**

Thank You for a Great Session!



QUESTIONS?

JASON.PETERS@VC3.COM



KEVIN.BENSON@VC3.COM