

# Using AI to Accelerate and Innovate



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# Chris Porter



- Associate professor of computer science at Drake University and director of Drake's Artificial Intelligence program
- Teach classes in computer science, data analytics, artificial intelligence, and digital ethics.

# Innovation Profs LLC

- Help people understand generative AI tools through workshops, lunch-and-learns and custom training
- Assist with crafting policies on the use of generative AI at your company or organization
- Offer a weekly newsletter of major developments in generative AI (with an Iowa focus) at **innovationprofs.com**

# The plan for today

- What is generative AI?
- Intro to prompting
- Use cases for language models
- Questions



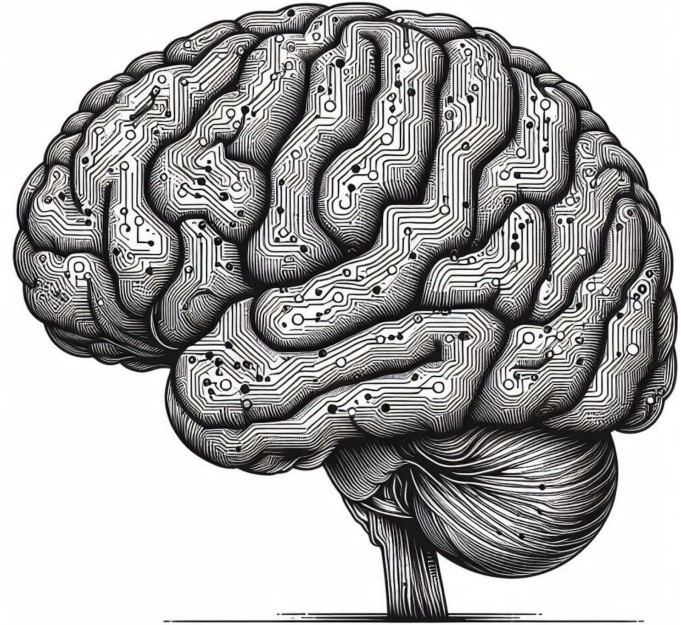
# What is Generative AI?

# What is generative AI?

- Generative AI is the use of AI tools to produce audio, text, images, video, code, and so on.
  - Text-based generative AI: ChatGPT, Gemini, CoPilot, Claude
  - Text-to-image generative AI: DALL-E 3, Midjourney, Stable Diffusion
- Contrast with other areas of AI: Prediction, classification, clustering, reinforcing certain behavior

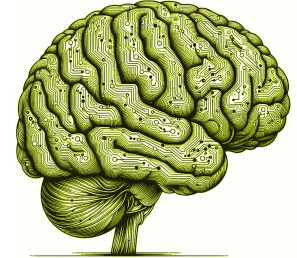
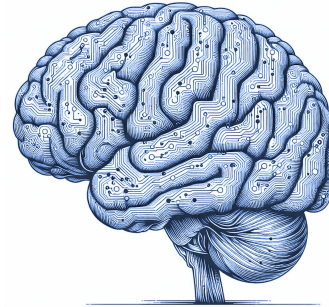
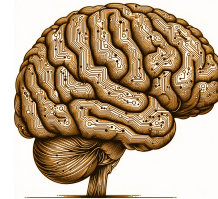
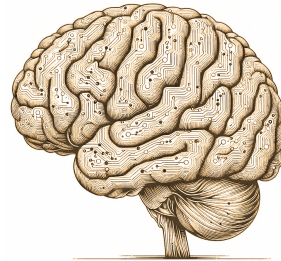
# Large language models

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# Large language models

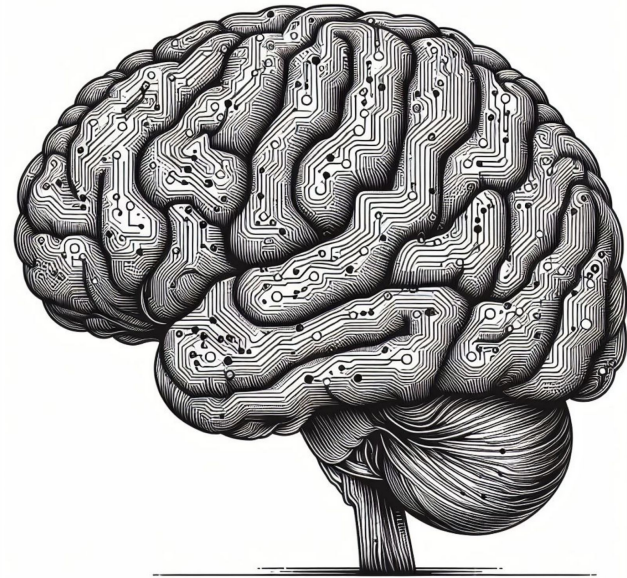
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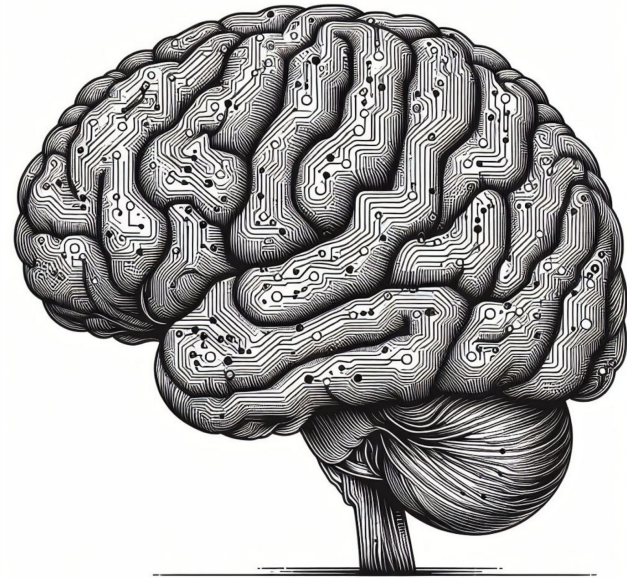
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GPT-2 example  
in response to a  
prompt about  
North Korea:

Life is a place full of surprises! Melt a glorious  
Easter cake in French but not that green. Well,  
a green cake, but for a Tuesday, of course! All  
Easter party year and here is the reason for baka.



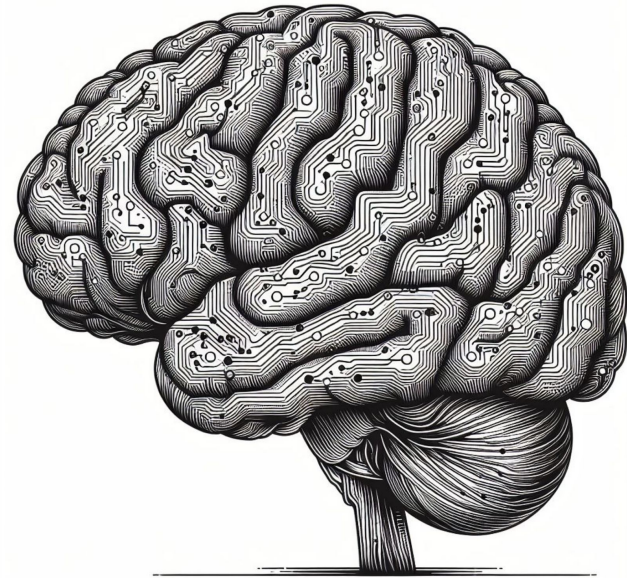


Complete this sentence:  
"A duck walks into a..."





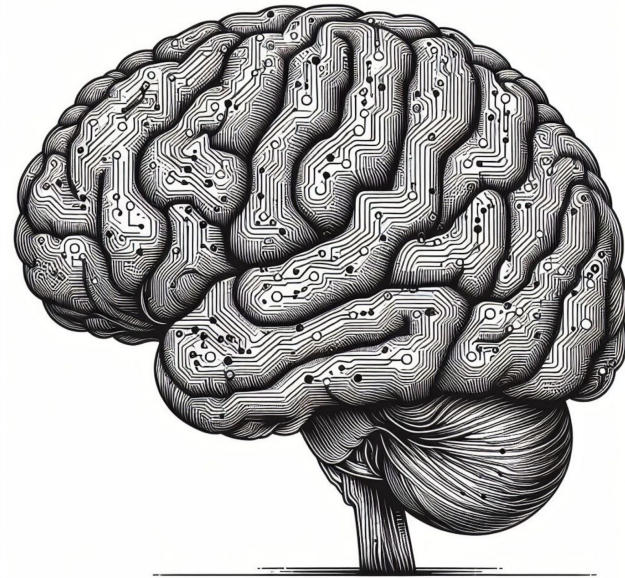
Complete this sentence:  
"A duck walks into a..."



A duck walks into a {  
bar (93%)  
pond (4%)  
bucket (2%)  
typhoon (1%)



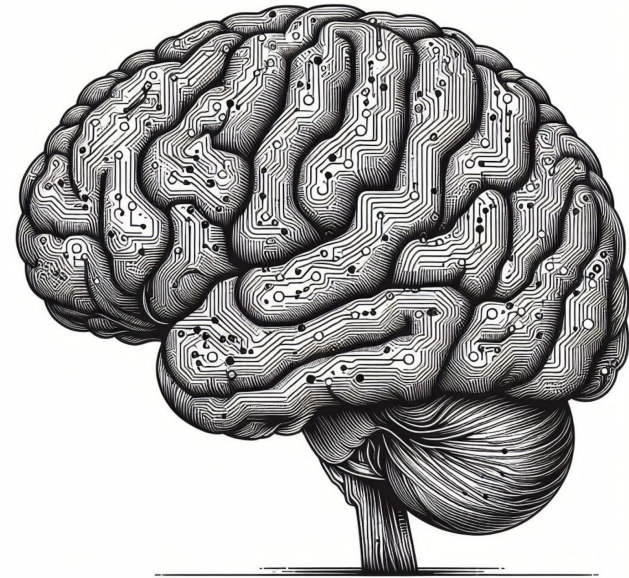
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Complete this sentence:  
"A duck walks into a..."



A duck walks into a bar.

# LLM tools

- ChatGPT - OpenAI
- CoPilot - Microsoft
- Gemini - Google
- Claude 3 - Anthropic
- Llama 3 - Meta



# Intro to Prompting



# What is prompting?

- Prompting is the process of creating an input (usually text) instructing the Generative AI to generate the desired response.



# A few notes on prompts

- Prompts can be simple questions, can contain large bodies of text, or might include a chain of instructions.
- Not all prompts are created equal: there is a skill to good prompt writing.
- Moreover, the same prompt used in two different conversations may yield different outcomes.
- Effective prompting should be an iterative process!

# A good prompt can affect performance!



**You**

Multiply  $2256 * 935$



**ChatGPT**

2256 multiplied by 935 equals 2,110,560.



**You**

Try again, but make sure you distribute correctly.

# A good prompt can affect performance!



ChatGPT

I apologize for the mistake. Let's distribute correctly:

$$2,256 * 935 = (2,000 * 935) + (200 * 935) + (50 * 935) + (6 * 935)$$

Now, calculating each part:

$$(2,000 * 935) = 1,870,000$$

$$(200 * 935) = 187,000$$

$$(50 * 935) = 46,750$$

$$(6 * 935) = 5,610$$

Now, add them all together:

$$1,870,000 + 187,000 + 46,750 + 5,610 = 2,109,360$$

So, 2256 multiplied by 935 with proper distribution is 2,109,360.

# Giving instructions

- One useful type of prompting is instruction prompting, in which one simply provides instructions (even complex ones) for the AI to complete.

CH

Read the following sales email. Remove any personally identifiable information (PII), and replace it with the appropriate placeholder. For example, replace the name "John Doe" with "[NAME]".



Hi John,

I'm writing to you because I noticed you recently purchased a new car. I'm a salesperson at a local dealership (Cheap Dealz), and I wanted to let you know that we have a great deal on a new car. If you're interested, please let me know.

Thanks,

Jimmy Smith

Phone: 410-805-2345

Email: jimmysmith@cheapdealz.com

# Giving instructions



Hi [NAME],

I'm writing to you because I noticed you recently purchased a new car. I'm a salesperson at a local dealership ([DEALERSHIP NAME]), and I wanted to let you know that we have a great deal on a new car. If you're interested, please let me know.

Thanks,

[SENDER NAME]

Phone: [PHONE NUMBER]

Email: [EMAIL ADDRESS]



# Role Prompting

- With role prompting, you begin by assigning a role to the AI, which affects the performance of the AI in response to the prompt in question.
- **Prompt:** I want you to act as the director of a small internet service provider in Iowa. Brainstorm a list of social media posts we can use to promote the value of using our service.





Sure! Here are some social media post ideas to promote your internet service provider:

### 1. Speed Test Challenge

- 📊 **How Fast Is Your Internet?** Take our speed test and see how our blazing-fast connections compare! Share your results with #SpeedTestChallenge and tag us!

### 2. Customer Testimonial Spotlight

- ✨ **Customer Spotlight:** Meet Sarah from Des Moines! She loves our service because it keeps her family connected effortlessly. Read her story and see why our customers are our biggest fans! #CustomerSpotlight

### 3. Behind-the-Scenes

- 🛠️ **Behind the Scenes:** Ever wondered what goes into providing you with the best internet service? Check out how our team works hard behind the scenes to keep you connected! #ISPInsider

### 4. Local Community Support

- 🤝 **Supporting Local:** We're proud to be a part of the Iowa community. From sponsoring local events to supporting local businesses, we're committed to giving back! #LocalSupport



## 5. Internet Tips and Tricks

- 💡 **Tip of the Week:** Want to get the most out of your internet connection? Here's a quick tip to boost your Wi-Fi signal! Stay tuned for more tips. #InternetTips

## 6. Exclusive Offers

- 🎉 **Special Offer:** New customers get 20% off their first 6 months! Switch to our reliable service today and experience the difference. #SpecialOffer #SwitchAndSave

## 7. Tech Tuesday

- 🛠️ **Tech Tuesday:** Learn about the latest in internet technology and how it benefits you. This week, we're diving into fiber optics! #TechTuesday

## 8. Customer Service Shoutout

- 🙌 **Meet Our Team:** Our customer service team is here for you 24/7! Get to know the friendly faces who are always ready to help. #CustomerService

# Role Prompting Resource

## Awesome ChatGPT Prompts

Welcome to the "Awesome ChatGPT Prompts" repository! This is a collection of prompt examples to be used with the ChatGPT model.

The [ChatGPT](#) model is a large language model trained by [OpenAI](#) that is capable of generating human-like text. By providing it with a prompt, it can generate responses that continue the conversation or expand on the given prompt.

In this repository, you will find a variety of prompts that can be used with ChatGPT. We encourage you to [add your own prompts](#) to the list, and to use ChatGPT to generate new prompts as well.

To get started, simply clone this repository and use the prompts in the README.md file as input for ChatGPT. You can also use the prompts in this file as inspiration for creating your own.

We hope you find these prompts useful and have fun using ChatGPT!

<https://github.com/f/awesome-chatgpt-prompts>

# Few Shot Prompting

- With few shot prompting, we provide the AI with several examples (i.e. shots) of what we want it to accomplish.

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Great product, 10/10: positive  
Didn't work very well: negative  
Super helpful, worth it: positive  
It doesnt work!:



negative



# What do LLMs do well?

- Generating human-like text (and even code!) on a wide variety of subjects
- Analyzing text, data, and other information, and providing summaries, insights, and recommendations
- Helping with all kinds of tasks like research, brainstorming, proofreading and language translation
- Creating novel ideas, stories, poems, and solutions to open-ended problems
- Following directions and completing tasks as instructed

# Augmenting our work with LLMs

- LLMs can assist us with tasks including:
  - Brainstorming ideas
  - Overcoming writer's block
  - Drafting “routine” copy for blogs
  - Writing social media posts
  - Summarizing text
  - Generating outreach templates
  - Help with recall of code syntax
  - Troubleshooting errors



# Marketing tasks AI can help with

- **Generate ideas/drafts** for blog posts, social media content, and other marketing materials
- Create **product descriptions, newsletters, other marketing copy**
- Generate **different creative text formats**, like poems, code, scripts, musical pieces, email, letters, etc.
- **Analyze your existing content** and suggest improvements
- **Personalize your content** for different audiences
- **Analyze customer data** to identify trends and insights
- **Analyze customer feedback** to identify areas for improvement

# More advanced uses of LLMs

- **AI agents:** With a paid subscription to ChatGPT, you can build GPTs, which are custom versions of ChatGPT that are tailored to a specific task.
- **Image generation:** The most popular LLMs can also be used to create images.
- **Other multimedia tools:** More broadly, generative AI tools to produce or modify audio and video are becoming increasingly available with impressive performance.

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# Generative AI weekly newsletter

