



# Unlocking AI: Fundamentals and Generative AI for Accountants

UAI4/25/V1



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# Course Outline

1. Introduction to AI in Accounting
2. Generative AI in Accounting and Prompt Engineering

# Chapter 1

## Introduction to AI in Accounting



*“AI is probably the most important thing humanity has ever worked on. I think of it as something more profound than electricity or fire.”*

– Sundar Pichai, Google CEO

Source: Speech at the World Economic Forum in Davos Switzerland, January 2018



# Learning Objectives

- Understand the fundamental concepts of artificial intelligence and its relevance to accounting
- Explore various AI applications in accounting and finance
- Identify the benefits and challenges associated with integrating AI into accounting processes
- Examine case studies of successful AI implementation in accounting firms
- Discuss the future trends and potential impacts of AI on the accounting profession

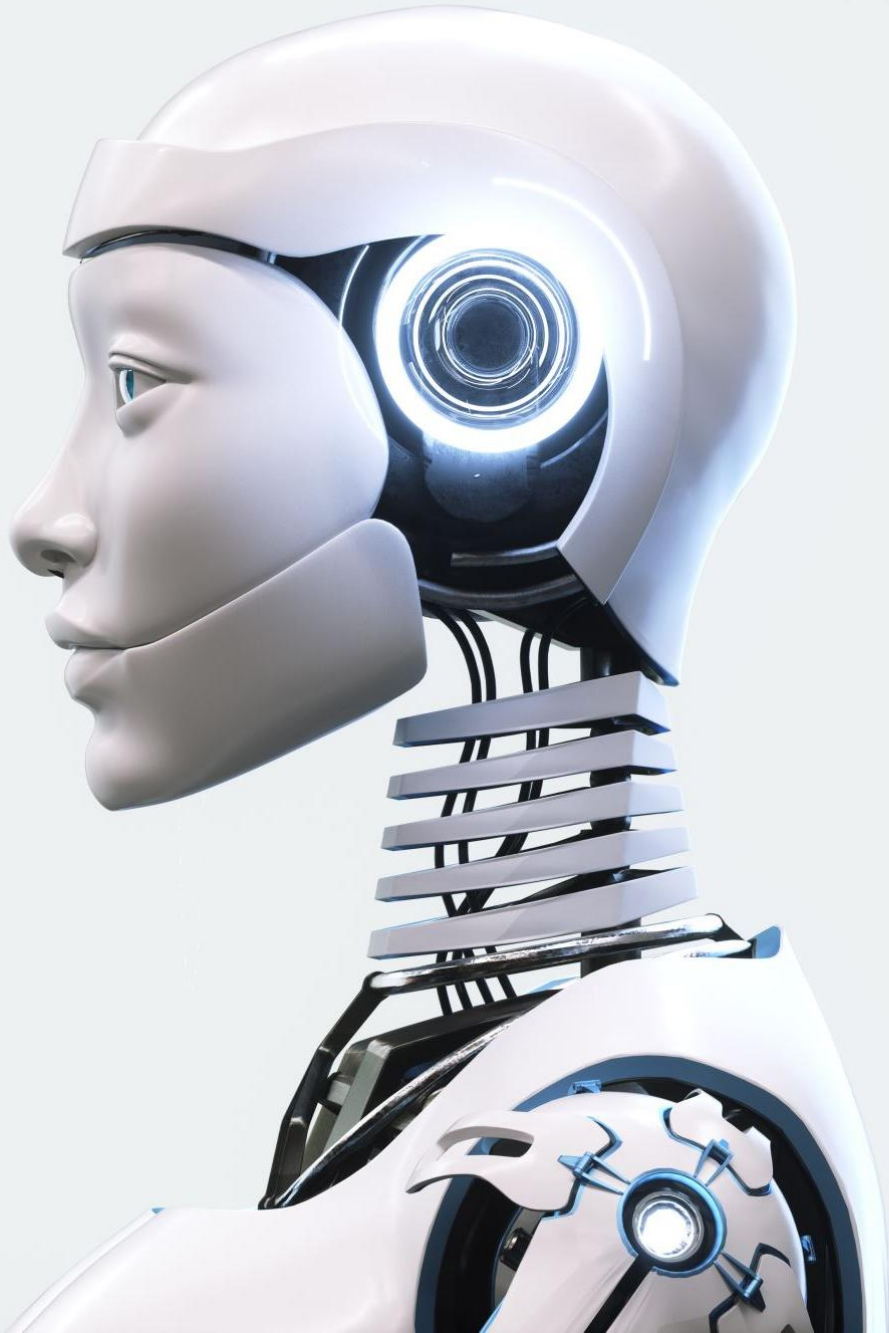


# Fundamental Concepts of AI



Image generated by OpenAI's DALL-E through ChatGPT





# Artificial Intelligence

“A computer program or software application that can imitate or simulate human behavior”

Source: Ng and Alarcon, Artificial Intelligence in Accounting: Practical Applications, 2020



# History of AI – Early Beginnings



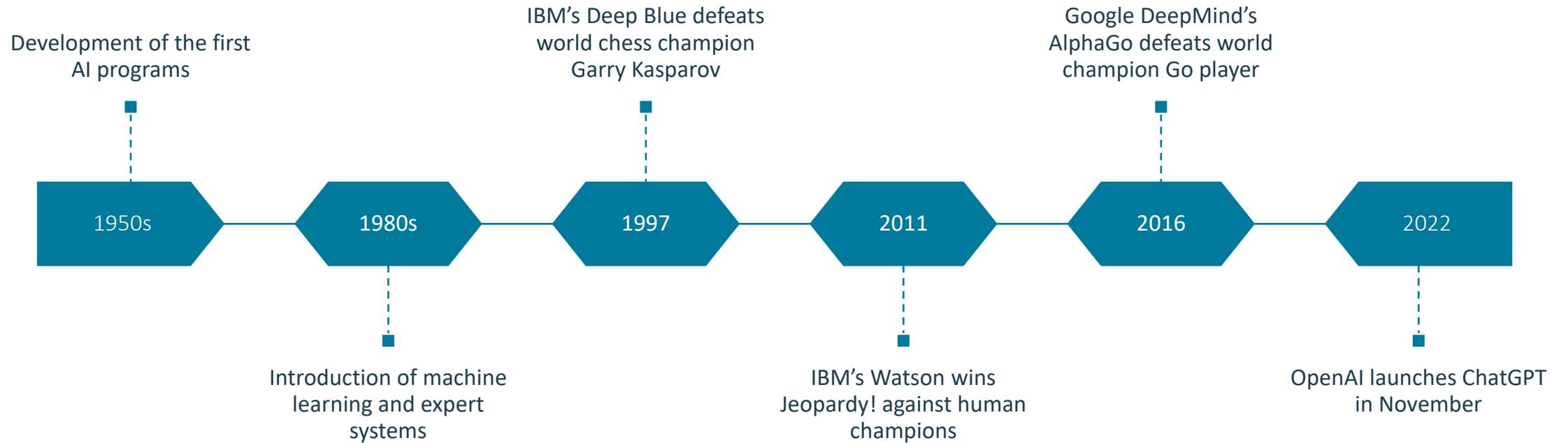
1950s: Alan Turing proposes the Turing Test to evaluate machine intelligence



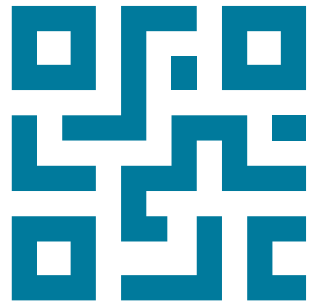
1956: The term “Artificial Intelligence” is coined at the Dartmouth Conference



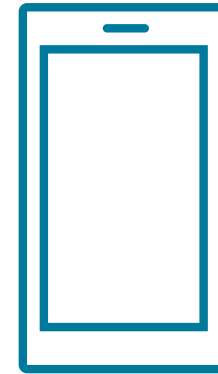
# Key Milestones in AI Development



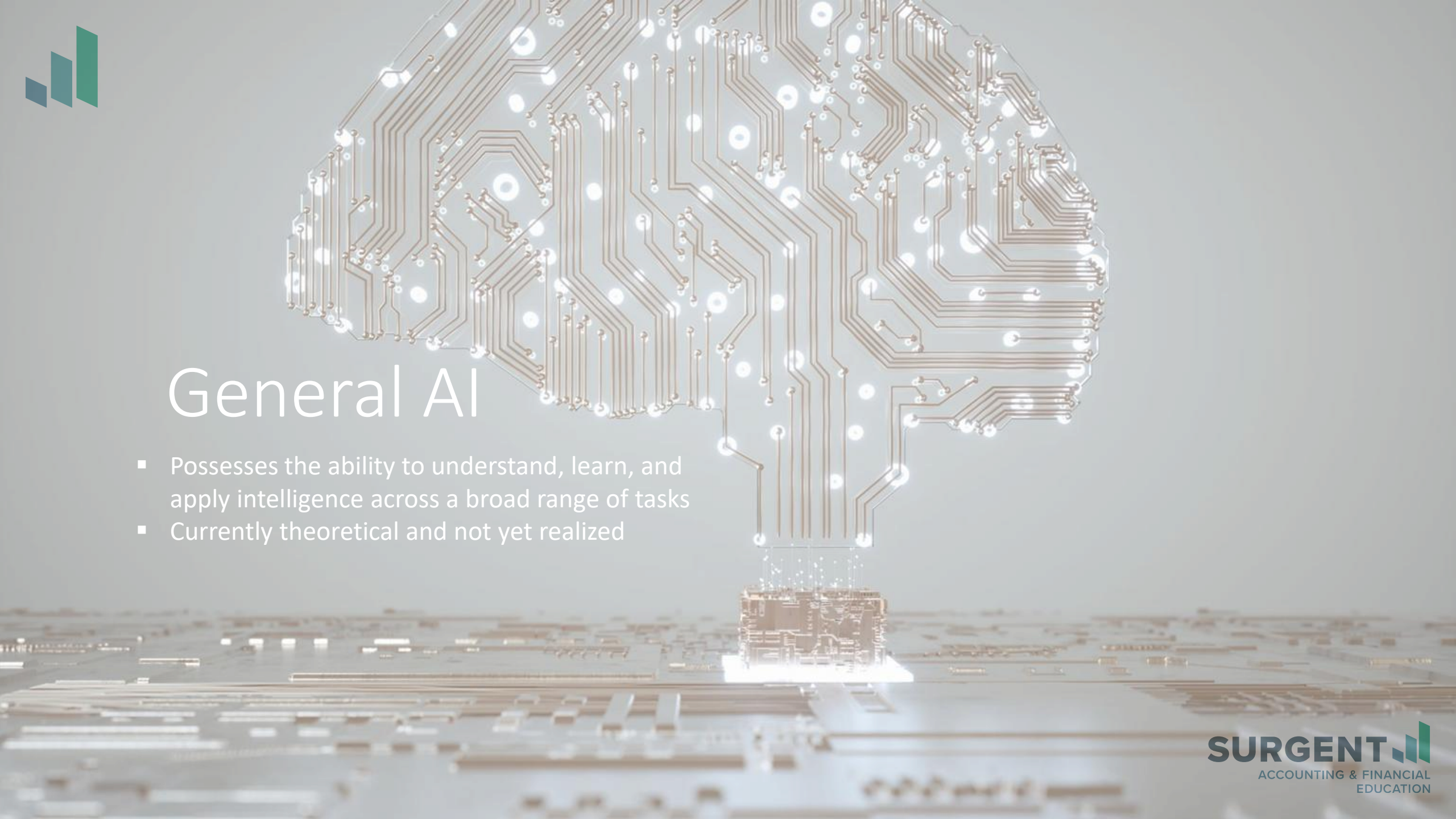
# Narrow AI



Designed to perform specific tasks



Examples: Virtual assistants  
(Siri, Alexa), recommendation systems



# General AI

- Possesses the ability to understand, learn, and apply intelligence across a broad range of tasks
- Currently theoretical and not yet realized

# Discussion Prompt

AI is often used in our daily lives, sometimes without us even realizing it. Think about the AI technologies you encounter every day (like voice assistants or smart home devices).





# Machine Learning

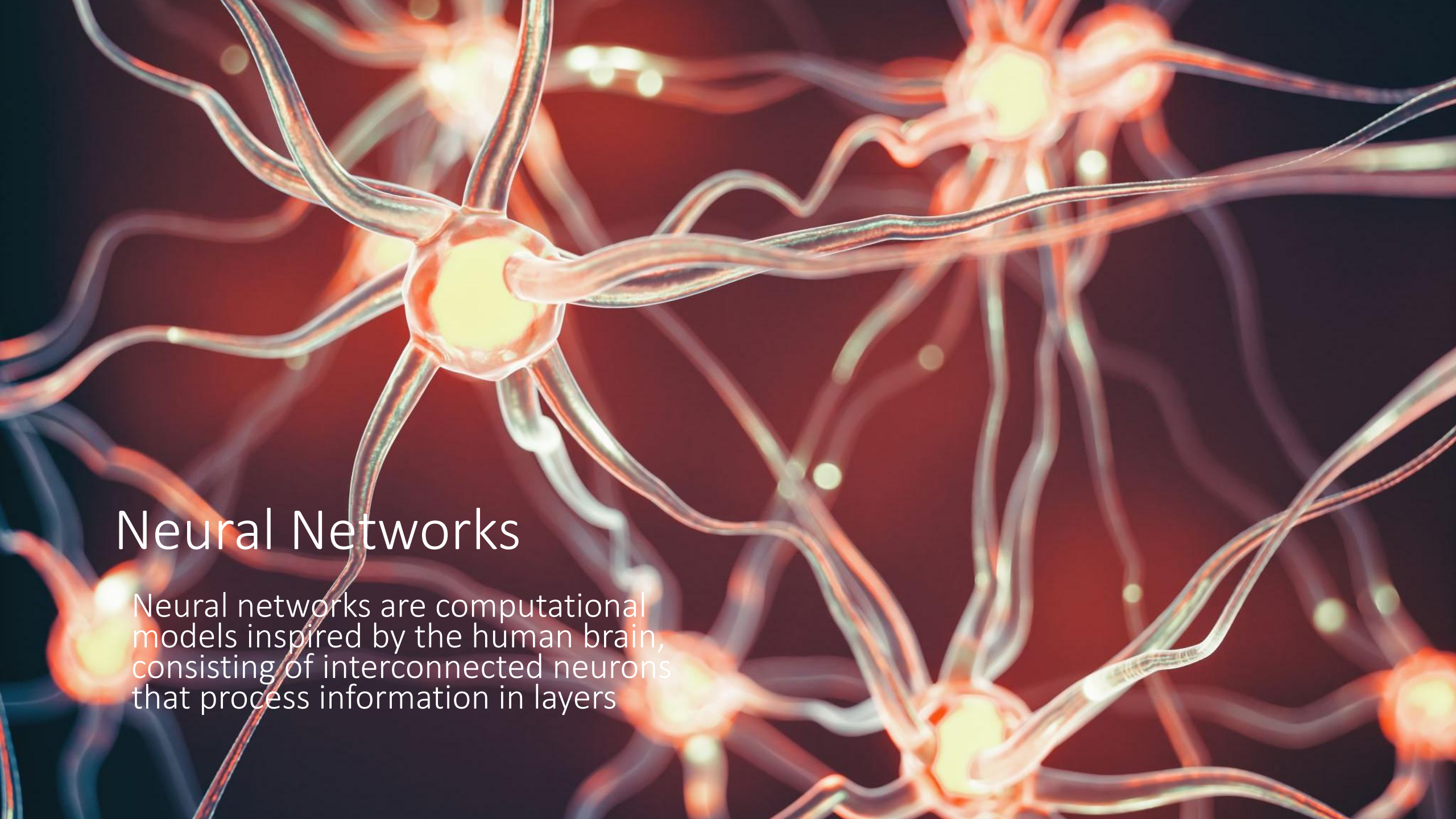
Machine learning (ML) is a subset of artificial intelligence (AI) that enables systems to learn and improve from experience without being explicitly programmed



# Deep Learning

Deep learning (DL) is a subset of ML involving neural networks with many layers (deep neural networks) that can model complex patterns in data





# Neural Networks

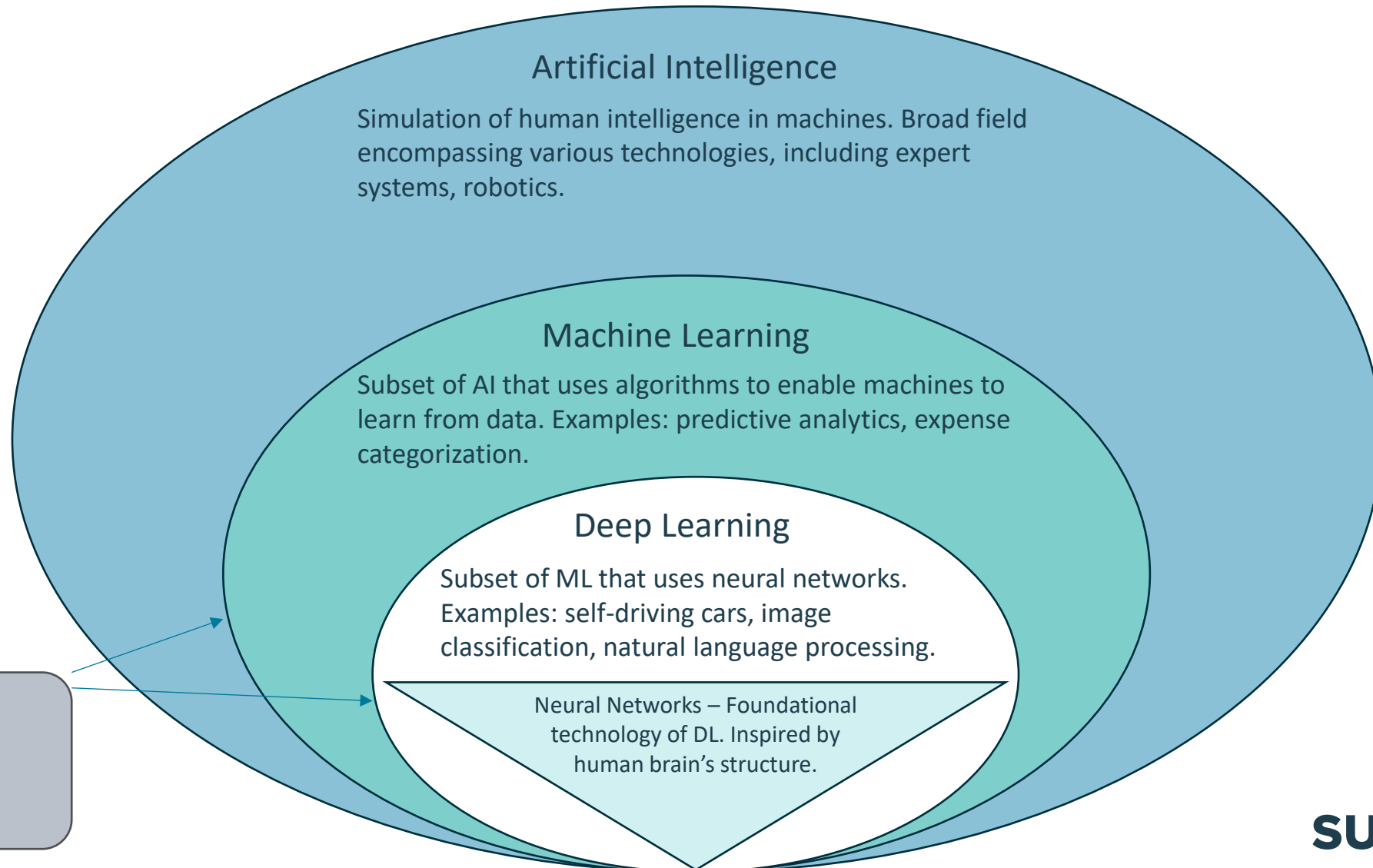
Neural networks are computational models inspired by the human brain, consisting of interconnected neurons that process information in layers



# Natural Language Processing

NLP is a branch of AI that enables computers to understand, interpret, and generate human language

# Relationship Between AI, ML, DL, NN, and NLP







# Machine Learning vs. Deep Learning

| Machine Learning                                                                           | Deep Learning                                                                                    |
|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| ML is a subset of AI. Not all ML is deep learning.                                         | Deep learning is advanced ML technology. All deep learning is ML.                                |
| ML is best for well-defined tasks with structured and labeled data                         | Deep learning is best for complex tasks that require machines to make sense of unstructured data |
| ML solves problems through statistics and mathematics                                      | Deep learning combines statistics and mathematics with neural network architecture               |
| Manually select and extract features from raw data and assign weights to train an ML model | Deep learning models can self-learn using feedback from known errors                             |
| ML is less complex and has a lower data volume                                             | Deep learning is more complex, with a very high data volume                                      |

Source: Amazon Web Services (AWS)

<https://aws.amazon.com/compare/the-difference-between-machine-learning-and-deep-learning/#:~:text=For%20instance%2C%20a%20company%20can,is%20needed%20to%20extract%20features.>



# Discussion Prompt

Natural Language Processing (NLP) is a type of AI that allows computers to understand and respond to human language. We use NLP technology when we ask Siri or Alexa a question.

How can NLP be used in accounting to automate routine tasks?

# Robotic Process Automation (RPA)

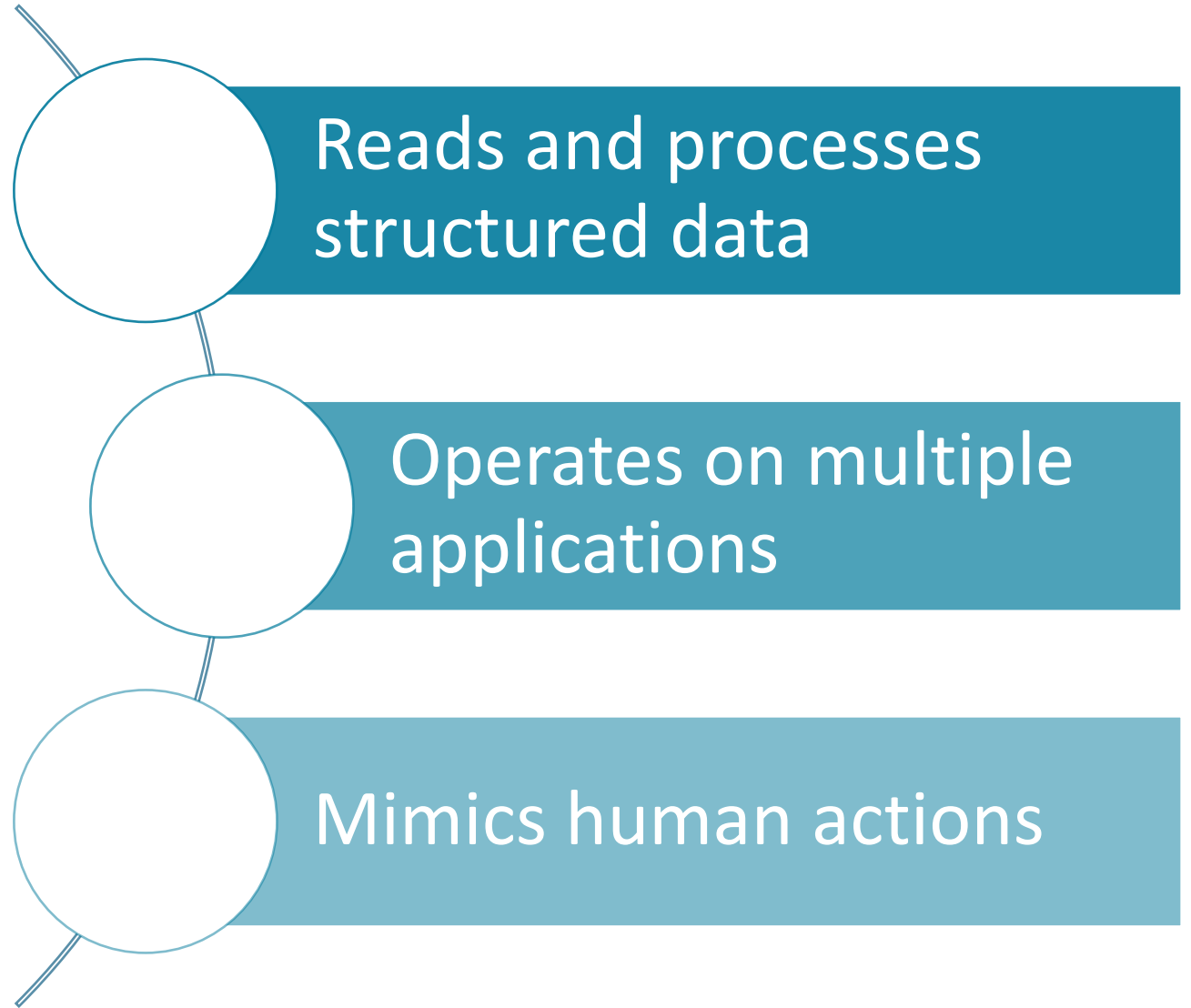
“A software application (robot or bot) that automates a business process by replicating the actions of humans performing tasks within digital systems, such as manipulating or transferring data”

Source: Ng and Alarcon, Artificial Intelligence in Accounting: Practical Applications, 2020



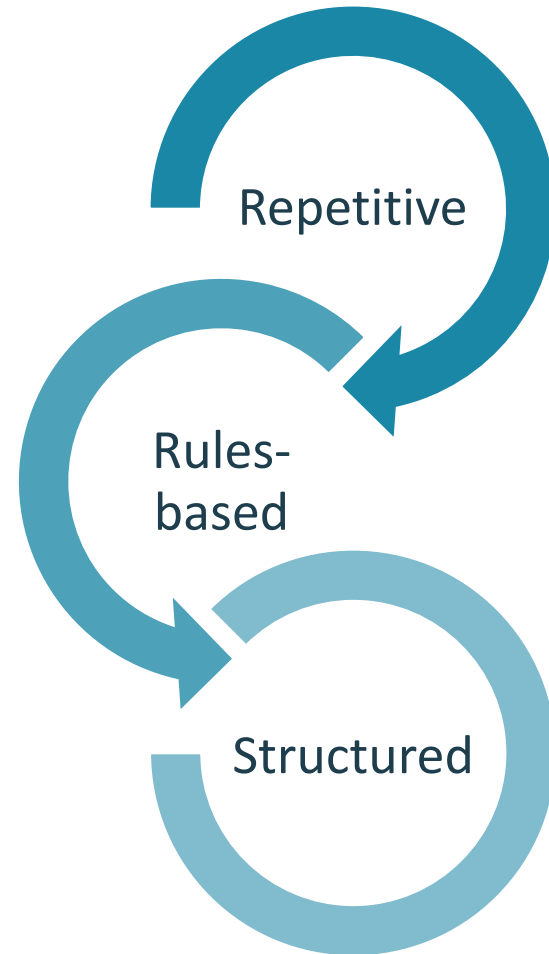


# Overview of RPA





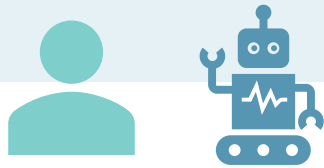
# When To Use RPA?



# Types of RPA Robots

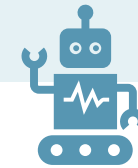
## Attended

Robots that collaborate with humans



## Unattended

Standalone robots







# Advantages and Disadvantages of RPA

## **ADVANTAGES**

- Digital workforce 24/7
- Faster and more accurate
- Financial benefits

## **DISADVANTAGES**

- Technical failures
- Compliance concerns
- Process limitations



# Integrating RPA With AI Applications

RPA paired with computer vision algorithms

Optical character recognition

Automated business process and task discovery

Augmented content analytics

Natural language processing (NLP) and natural language generation (NLG)

# Discussion Prompt

Can you think of any business processes in your organization that might be good candidates for RPA?



# Relevance of AI to Accounting

- Automates repetitive tasks
- Enhances decision-making with predictive analytics
- Improves accuracy and reduces errors
- Increases efficiency and productivity



# AI's Impact on the Accounting Profession

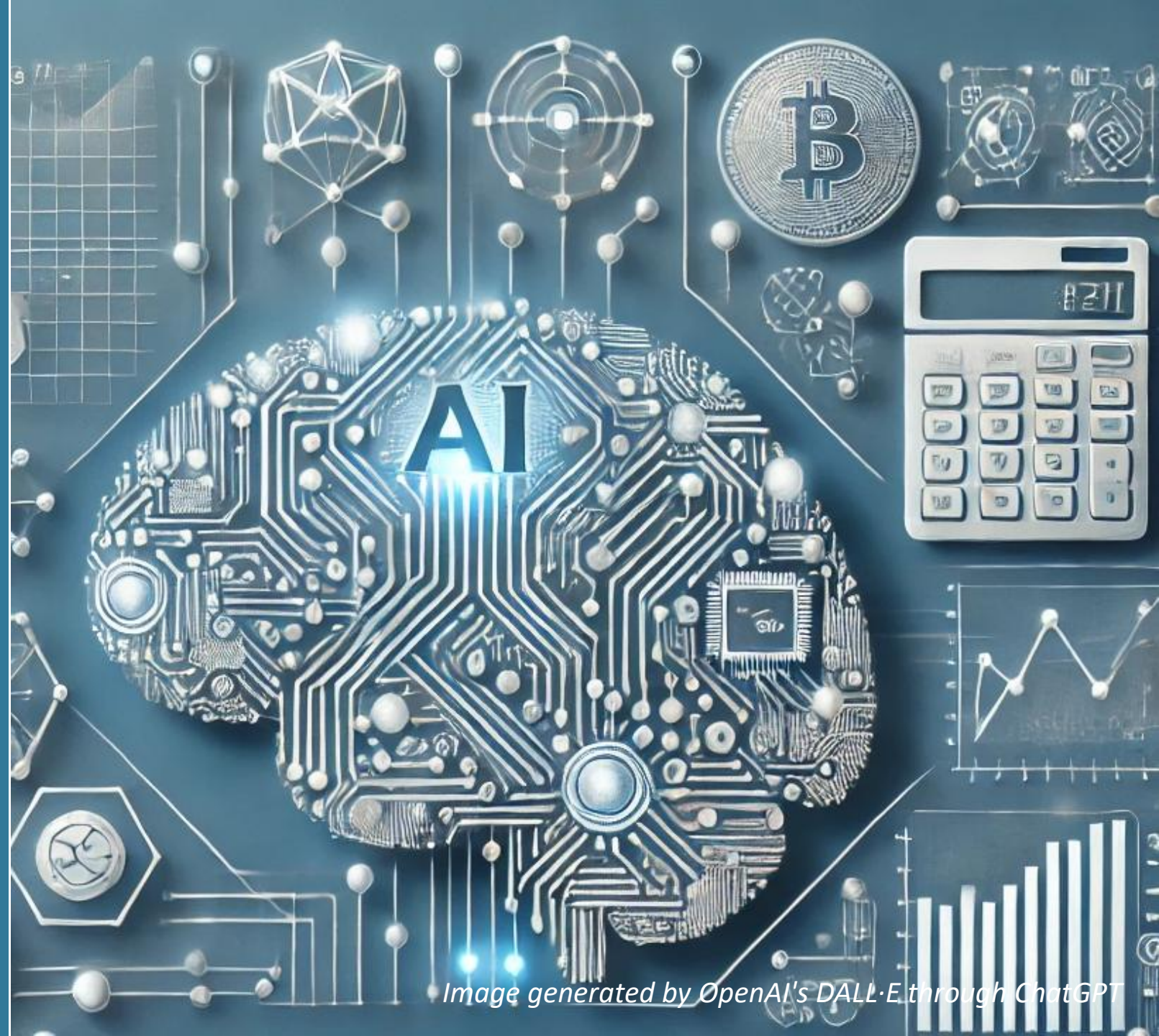
- Evolution of job roles and responsibilities
- New skills and competencies required
- Ethical considerations and data privacy
- Collaboration with AI tools



# Discussion Prompt

How do you see AI changing the accounting profession in the next 5 years?

# AI Applications in Accounting and Finance



*Image generated by OpenAI's DALL-E through ChatGPT*





# AI Is Transforming Accounting Through Automation



# Traditional vs. AI-Driven Accounting

## **Traditional**

- Manual data entry
- Periodic reporting
- Reactive decision-making
- Static audit sampling

## **AI-Driven Accounting**

- Automated data processing
- Real-time insights
- Predictive analytics
- Comprehensive data analysis



# AI Tools for Automating Routine Tasks

- Robotic Process Automation (RPA)
  - Automates repetitive processes like data entry
- Machine Learning Algorithms
  - Analyze patterns in data to predict outcomes
- Natural Language Processing (NLP)
  - Interprets and processes human language to automate tasks like document processing



# Applications of AI in Accounting and Finance

- Automated data entry
- Expense management
- Audit support
- Financial forecasting
- Invoice processing
- Bank reconciliation
- Fraud detection
- Tax compliance
- Risk assessment
- Document management
- Compliance monitoring
- Personalized financial advice



# Accounting Applications



Cash and account reconciliations



Receivables and sales



Inventory



Accounts Payable



ACCOUNT  
RECONCILIATIONS



INTERNAL CONTROL  
TESTING



DETAIL TESTING

1

Export trial  
balances

2

Convert trial  
balances to tax  
basis

3

Prepare tax  
returns

4

Calculate  
deferred taxes  
and book entries

5

Respond to tax  
inquiries

# Advisory Applications



COMPLIANCE WITH LEASE  
ACCOUNTING STANDARDS



CONTRACT DATA EXTRACTION



# AI in Financial Services

- *“AI could potentially drive global banking industry profits to \$2 trillion by 2028, a 9% increase over the next five years”*

Source: CitiGPS report

<https://www.citigroup.com/global/insights/citigps/ai-in-finance>



# Impact of Adopting AI on Bank's Profitability



IMPROVE PROFITS 93%



REDUCE PROFITS 7%

Source: Citi Treasury & Trade Solutions Survey 2024





# Use Cases of AI in Financial Services

- Coding & Software
- Search & Summarization
- Transaction Monitoring
- Credit Risk & Underwriting
- Investment Research
- Asset & Portfolio Management

Source: CitiGPS report

<https://www.citigroup.com/global/insights/citigps/ai-in-finance>

# Discussion Prompt

Does your organization currently use AI-enabled technology?

# Benefits and Challenges of Integrating AI Into Accounting



Image generated by OpenAI's DALL-E through ChatGPT



# Benefits of Integrating AI Into Accounting

- Efficiency
  - Reduces human errors
  - Ensures consistency in repetitive tasks
- Accuracy
  - Speeds up processing time
  - Handles large volumes of data quickly
- Improved decision-making
  - Data-driven insights
  - Predictive analytics
- Cost savings
  - Reduced labor costs
  - Operational efficiencies
- Real-time financial monitoring
  - Continuous monitoring
  - Enhanced security
  - Up-to-date financial status



# Challenges of Integrating AI Into Accounting

- High implementation costs
  - Initial setup can be expensive
- Data privacy concerns
  - Protecting sensitive data
- Ethical challenges
  - Identifying and mitigating bias in AI algorithms
- Skill gap and training
  - Accountants need to be trained to work alongside AI
- Resistance to change
  - Some professionals may be hesitant to adopt new technologies



# Top Reasons Why Audit Firms Do Not Incorporate AI

| Reason                                 | Percentage of Survey Respondents |
|----------------------------------------|----------------------------------|
| Lack of training and infrastructure    | 23%                              |
| Technology is too expensive            | 17%                              |
| Technology is not useful               | 17%                              |
| Inability to access usable client data | 13%                              |
| Technology is difficult to use         | 12%                              |

Source: AICPA Auditing Standards Board Technology Task Force





# Overcoming AI Integration Challenges in Audit

- Firm leadership commitment
  - Understand the value of AI technology
  - Recognize opportunity costs of not adopting AI
  - Align strategy to invest in digital transformation
- Clarify technology's usefulness
  - Demonstrate value through strategic investment
  - Show importance of changes in training and infrastructure
- R&D audits for buy-in
  - Test AI on prior year or new audits
  - Use nonbillable time for learning
  - Show clients the enhanced insights and efficiencies

Source: "What AI can do for Auditors" by Anita Dennis, *Journal of Accountancy*, February 1, 2024





# Overcoming AI Integration Challenges in Audit

- Communicate with clients on costs and scope
  - Pass on technology charges
  - Scale technology based on client needs
- Be prepared for challenges with client data streams
  - Anticipate data quality issues
  - Clarify requirements with clients

Source: “What AI can do for Auditors” by Anita Dennis, *Journal of Accountancy*, February 1, 2024



# Overcoming AI Integration Challenges

- Strategic planning and investment
- Robust data security measures
- Comprehensive training programs
- Change management strategies

# Discussion Prompt

Do you have any concerns with using AI-enabled technology in delivering accounting services?

# Case Studies of Successful AI Implementation in Firms



Image generated by OpenAI's DALL-E through ChatGPT



# EY Accounting AI for Payables

Module 1: Extract invoice data

Module 2: Invoice classification

Module 3: Posting prediction

Module 4: Reviewing anomalies

Module 5: Approval workflow

- Innovative AI platform integrating machine learning, deep learning, and computer vision
  - Processes structured and unstructured data, voice, and images
  - Facilitates rapid AI solution development and delivery-secure environment
- Features of KPMG Ignite
  - Collaborates with leading platforms like Microsoft Azure, Google Cloud, and IBM Watson
  - Accelerates design and build phases, promoting extensive reusability
- Benefits of using KPMG Ignite
  - Enhances consistency and precision in decision-making. Codifies expert knowledge into the AI platform. Reduces cost and development time for insights. Increases accuracy with comprehensive data coverage.





# Deloitte Cognitive Advantage

- Cognitive-enabled data management
  - AI and ML address data quality and governance
  - Accelerate time to value by automating labor-intensive processes
- Enhance decision-making with cognitive insights
  - Discover unseen patterns and correlations in data
  - Drive evidence-based decision-making with real-time insights
- Deloitte's success with cognitive technologies
  - Case study of a national beverage manufacturer improving ROI by 15%
  - Pharmaceutical company achieving 10% revenue growth with cognitive strategies



# PwC's AI-Based Fraud Detection

- PwC's GL.ai bot detects fraud by analyzing vast datasets quickly
- The bot identifies discrepancies that might be missed by human auditors
- AI integration leads to more accurate and faster audits

# Future Trends and Potential Impact of AI on the Accounting Profession



*Image generated by OpenAI's DALL-E through ChatGPT*



# Top 10 Skills of 2023

1. Analytical thinking
2. Creative thinking
3. Resilience, flexibility, and agility
4. Motivation and self-awareness
5. Curiosity and lifelong learning
6. ***Technological literacy***
7. Dependability and attention to detail
8. Empathy and active listening
9. Leadership and social influence
10. Quality control

Source: World Economic Forum, Future of Jobs Report 2023





# Top 10 Skills on the Rise

1. Creative thinking
2. Analytical thinking
- 3. *Technological literacy***
4. Curiosity and lifelong learning
5. Resilience
6. Systems thinking
- 7. *AI and big data***
8. Motivation
9. Talent management
- 10. Service orientation**

Source: World Economic Forum, Future of Jobs Report 2023



# Top 10 Job Roles in Increasing and Decreasing Demand Across Industries

| Top 10 Fastest Growing Jobs |                                                   |
|-----------------------------|---------------------------------------------------|
| 1                           | <i><b>AI and Machine Learning Specialists</b></i> |
| 2                           | Sustainability Specialists                        |
| 3                           | Business Intelligence Analysts                    |
| 4                           | Information Security Analysts                     |
| 5                           | Fintech Engineers                                 |
| 6                           | Data Analyst and Scientists                       |
| 7                           | Robotics Engineers                                |
| 8                           | Electrotechnology Engineers                       |
| 9                           | Agricultural Equipment Operators                  |
| 10                          | Digital Transformation Specialists                |

| Top 10 Fastest Declining Jobs |                                                                          |
|-------------------------------|--------------------------------------------------------------------------|
| 1                             | Bank Tellers and Related Clerks                                          |
| 2                             | Postal Service Clerks                                                    |
| 3                             | Cashiers and Ticket Clerks                                               |
| 4                             | Data Entry Clerks                                                        |
| 5                             | Administrative and Executive Secretaries                                 |
| 6                             | Material-Recording and Stock-Keeping Clerks                              |
| 7                             | <i><b>Accounting, Bookkeeping, and Payroll Clerks</b></i>                |
| 8                             | Legislators and Officials                                                |
| 9                             | Statistical, Finance, and Insurance Clerks                               |
| 10                            | Door-to-Door Sales Workers, News and Street Vendors, and Related Workers |

Source: Adapted from World Economic Forum, Future of Jobs Report 2023





# Must-Know Technologies

Artificial  
intelligence

Data analytics

Blockchain

Robotic  
process  
automation

Data mining

Cloud  
computing



# Strategies for Upskilling Workforce



MENTORING



TUITION REIMBURSEMENT  
PROGRAMS



CREDENTIAL PROGRAMS

# Discussion Prompt

What strategies does your firm employ to upskill your accounting team in emerging technologies like AI and data analytics?

How do you plan to stay ahead in this rapidly evolving field?

# Chapter 2

## Generative AI in Accounting and Prompt Engineering



*“Generative AI has the potential to change the world in ways that we can’t even imagine. It has the power to create new ideas, products, and services that will make our lives easier, more productive, and more creative. It also has the potential to solve some of the world’s biggest problems, such as climate change, poverty, and disease.”*

-Bill Gates, Microsoft Co-Founder

Source: “The Age of AI has Begun,” March 2023



# Learning Objectives

- Explain the principles of generative AI, distinguish it from non-generative AI, and explore its frequent use cases
- Understand the current use, limitations, risks, and supervision of GenAI integration in audits and financial reporting
- Apply best practices for creating prompts and explore examples of impactful prompts
- Practice common prompt engineering techniques and approaches for writing effective prompts
- Explore commonly used tools for prompt engineering to aid with prompt engineering



# Principles of Generative AI

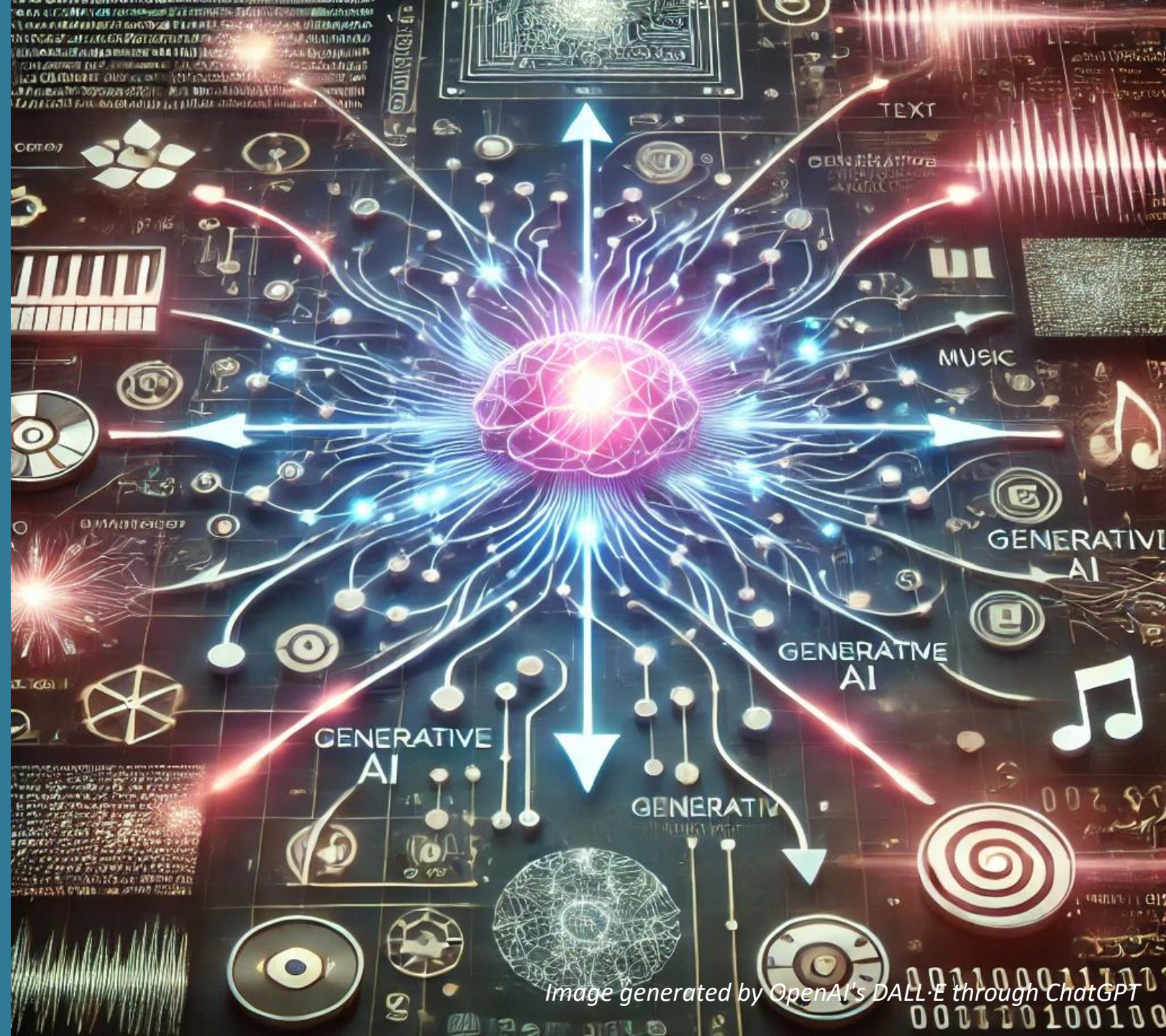


Image generated by OpenAI's DALL-E through ChatGPT

# Generative AI

Generative AI creates new data or content based on training data



Text



Images



Audio



Video



Code



# Basic Principles of Generative AI

- Trained on large datasets:
  - Generative AI models are trained on vast amounts of data, learning to identify and replicate patterns within that data
- Data generation:
  - Once trained, these models can produce new content that mimics the characteristics of the training data
- Probabilistic models:
  - Generative AI often relies on probabilistic models, meaning it generates outputs based on probabilities derived from its training data



# Non-generative AI (Discriminative AI)

- Analyzes and interprets existing data:
  - Classification
  - Prediction
  - Pattern Recognition
- Applications of non-generative AI:
  - Spam filters
  - Recommendation systems
  - Facial recognition





# Generative AI vs. Non-generative AI

## Generative AI

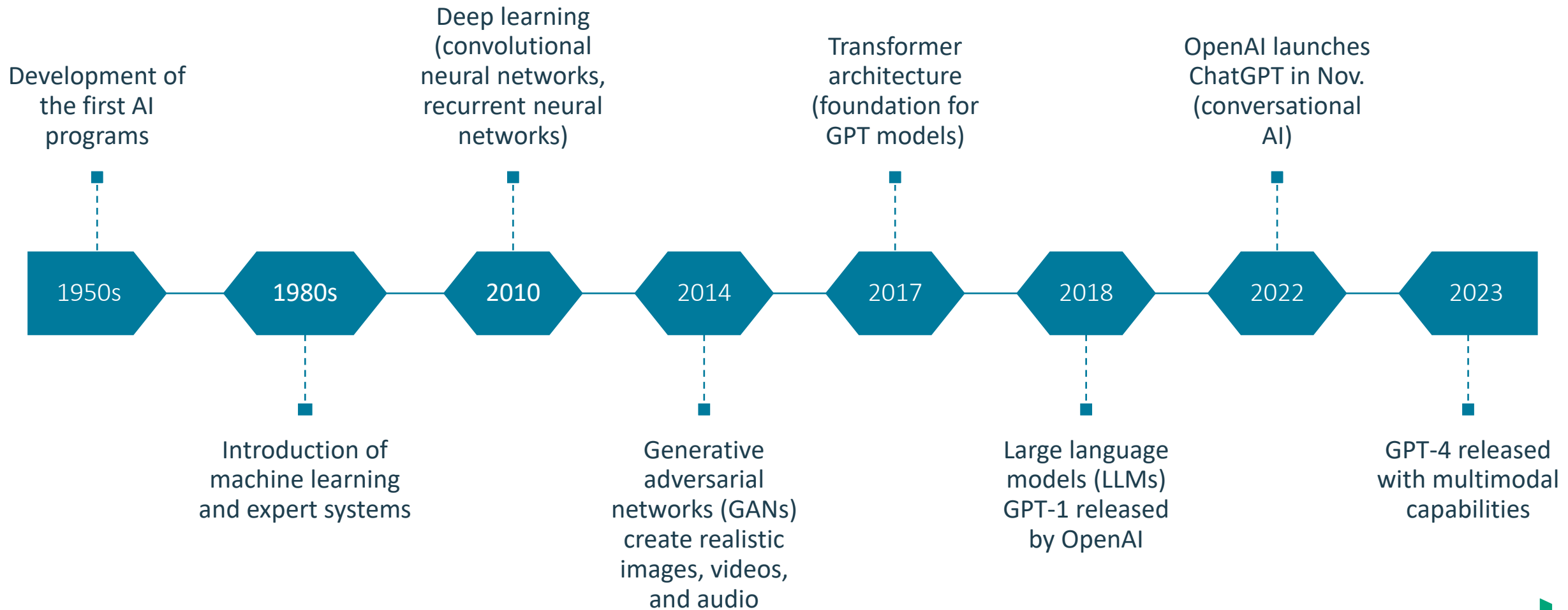
- Produces new content
- Generally more flexible and creative
- Applications:
  - Tasks requiring creativity
  - Content generation
  - Simulations

## Non-generative AI

- Provides insight or decisions based on existing data
- Typically task-specific
- Applications:
  - Fraud detection
  - Forecasting
  - Categorization

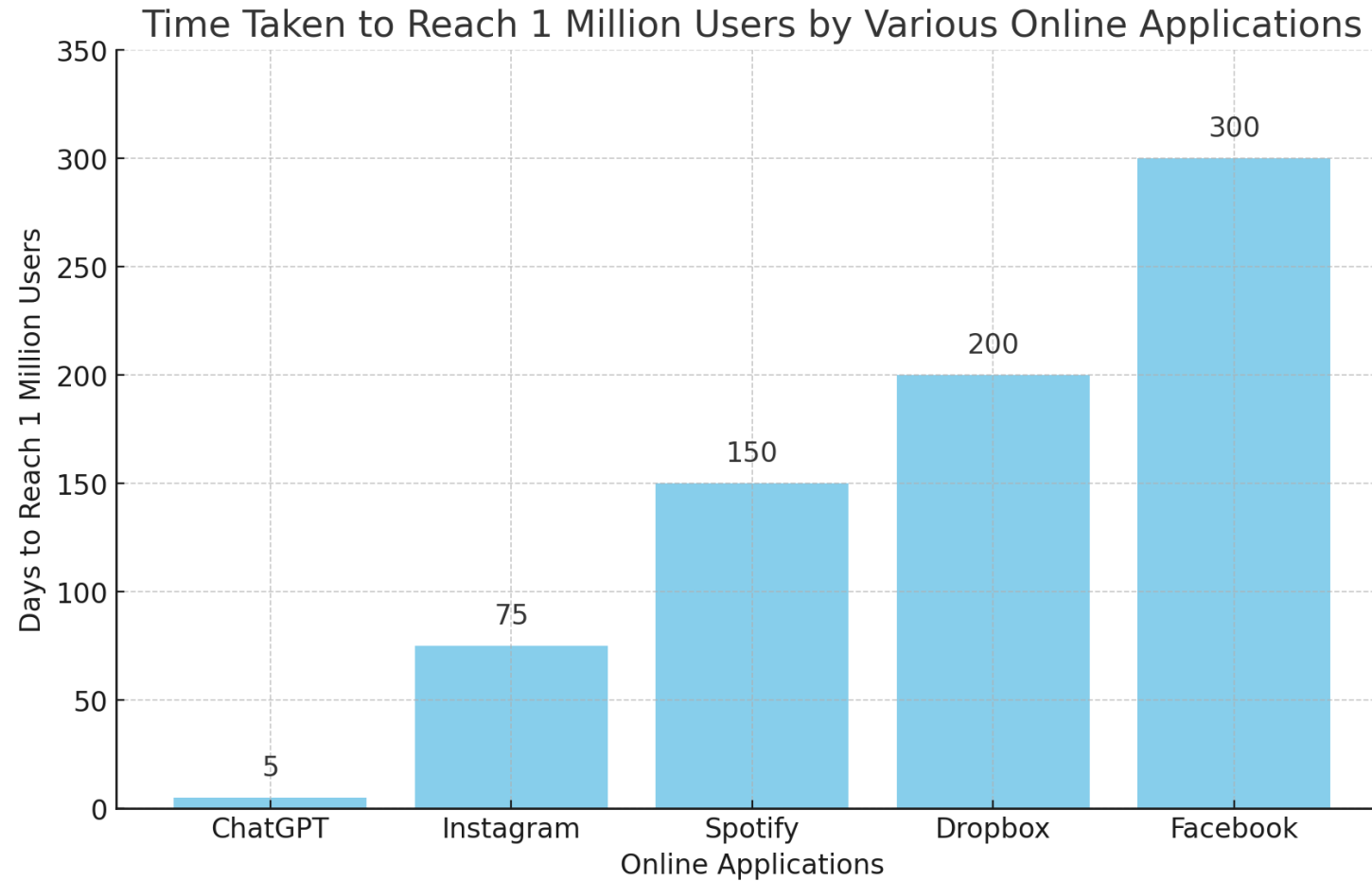


# Key Milestones in GenAI Development





# ChatGPT: The Fastest to 1 Million Users



Source: Chart created using ChatGPT by OpenAI



# Discussion Prompt

Considering the differences between generative AI and non-generative AI, which do you think holds more potential for innovation in the accounting field? Why?

# Generative AI in Audits and Financial Reporting



Image generated by OpenAI's DALL·E through ChatGPT





# Current Uses of Generative AI in Audits

- Data analysis and anomaly detection:
  - Processing large volumes of financial data
  - Identifying unusual patterns or transactions
- Natural language processing (NLP) for document review:
  - Analyzing contracts, policies, and financial statements
  - Extracting relevant information from unstructured data
- Automated document generation:
  - Creating administrative documents, memos, and presentations for the audit
  - Drafting audit reports and financial summaries
- Risk assessment:
  - Predicting potential areas of concern based on historical data



# Limitations of Generative AI in Audits

- Lack of professional judgment:
  - AI cannot fully replace human expertise and intuition
- Accuracy concerns:
  - Can sometimes be inaccurate due to training data limitations
- Data quality dependence:
  - Results are only as good as the input data
- Difficulty with complex, nuanced situations:
  - May struggle with unique or context-specific scenarios
- Transparency and explainability issues:
  - “Black box” nature of some AI models



# Risks Associated with GenAI in Financial Reporting

- Overreliance on AI-generated results:
  - Potential for overlooking critical issues
- Data privacy and security concerns:
  - Handling sensitive financial information
- Bias and fairness issues:
  - AI models may perpetuate existing biases in data
- Regulatory compliance challenges:
  - Ensuring AI use aligns with auditing standards



# Supervision of GenAI in Audits

- Human-in-the-loop (HITL):
  - Integrate human oversight at key stages of the AI process to validate outputs
- Bias detection and mitigation:
  - Regularly audit AI systems to identify and correct biases
- Transparency and documentation:
  - Maintain detailed records of AI processes, including decision-making criteria and data sources
- Ethical guidelines and governance frameworks:
  - Establishing clear policies for AI use in audits

## Discussion Prompt

Given the current uses of GenAI in audits discussed, how do you envision the role of human auditors evolving over the next decade? What skills do you think will become more important for auditors as AI takes on more tasks?



# Understanding Prompts and Best Practices



Image generated by OpenAI's DALL-E through ChatGPT



# Understanding Prompts

- Prompt: an input or instruction given to an AI system to perform a task or generate a response
- Examples:
  - “Summarize the financial performance of ABC Corporation for Q2 2024”
  - “Compare the advantages and disadvantages of FIFO and LIFO inventory methods”



# Understanding the Flow of Prompts

## Prompt Input:

- User provides the prompt



## Prompt Processing:

- AI system analyzes and understands the prompt



## Response Generation:

- AI system generates a response based on the prompt



## Response Output:

- Generated response is presented to the user





# Key Elements of a Prompt

- **Context:**
  - The background information or setting for the task
- **Instruction:**
  - The specific task or question you want the AI to address
- **Input data:**
  - Any specific information needed for the task (not always required)
- **Output format:**
  - The desired format of the AI's response (if you have a preference)



# Context | Good Prompt vs. Bad Prompt



“As a financial analyst reviewing Q4 earnings”

“Look at this”



# Instruction | Good Prompt vs. Bad Prompt



“Summarize the key factors contributing to the 15% revenue increase”

“Tell me about the numbers”





# Input Data | Good Prompt vs. Bad Prompt



“Use the quarterly sales data from the years 2021, 2022, and 2023 to create your forecast”

“Use sales data to make a prediction”



# Output Format | Good Prompt vs. Bad Prompt



“Provide the forecast in a summary report with key insights highlighted, including a line graph showing the predicted trends over the next quarter”

“Provide the results”



# Putting It All Together

“As a financial analyst reviewing Q4 earnings, summarize the key factors contributing to the 15% revenue increase. Use the provided quarterly report data: Revenue \$10M, Expenses \$7M, New Clients 500. Present your analysis in a 5-bullet point summary, followed by a one-paragraph conclusion.”

# Prompt Creation Challenge Lab

Objective: apply best practices for creating prompts and explore examples of impactful prompts



# Prompt Creation Challenge Lab

- Your company needs to prepare a quarterly financial report. The report should include a summary of revenue streams, a comparison with the previous quarter, and identification of any significant variances. Create prompts that will instruct the AI to generate this report effectively.
- Develop a prompt, considering the key elements:
  - Context | Instruction | Input Data | Output Format



# Recap of the Key Elements of a Prompt

## Context

- Sets the background
- Helps AI understand the scope and relevance

## Instruction

- Clear, specific direction
- Defines the core task or question

## Input Data

- Specific information needed for the task
- Can be numbers, text, or other data types

## Output Format

- Specifies the desired format
- Helps ensure the output is immediately useful





# Example Prompt | Quarterly Financial Report

- Context: act as a CFO preparing a quarterly financial report for our company
- Instruction: generate a quarterly financial report for our company
  - The report should include a detailed summary of the revenue streams for the current quarter, a comparison with the previous quarter, and identification of any significant variances. The revenue streams are as follows:
- Input data:
  - Current Quarter Revenue:
    - Product A: \$2,500,000
    - Product B: \$3,200,000
    - Product C: \$1,800,000
  - Previous Quarter Revenue:
    - Product A: \$2,400,000
    - Product B: \$3,500,000
    - Product C: \$2,000,000



# Example Prompt | Quarterly Financial Report

- Input data (continued):
  - Consider the following additional information: market conditions have been stable, but there has been a noticeable change in customer demand for Product B due to a new competitor entering the market
- Output format:
  - Structure the report with:
    - Executive summary
    - Detailed revenue summary
    - Quarter-over-quarter comparison
    - Variance analysis
    - Conclusion

# Prompt Engineering Basics

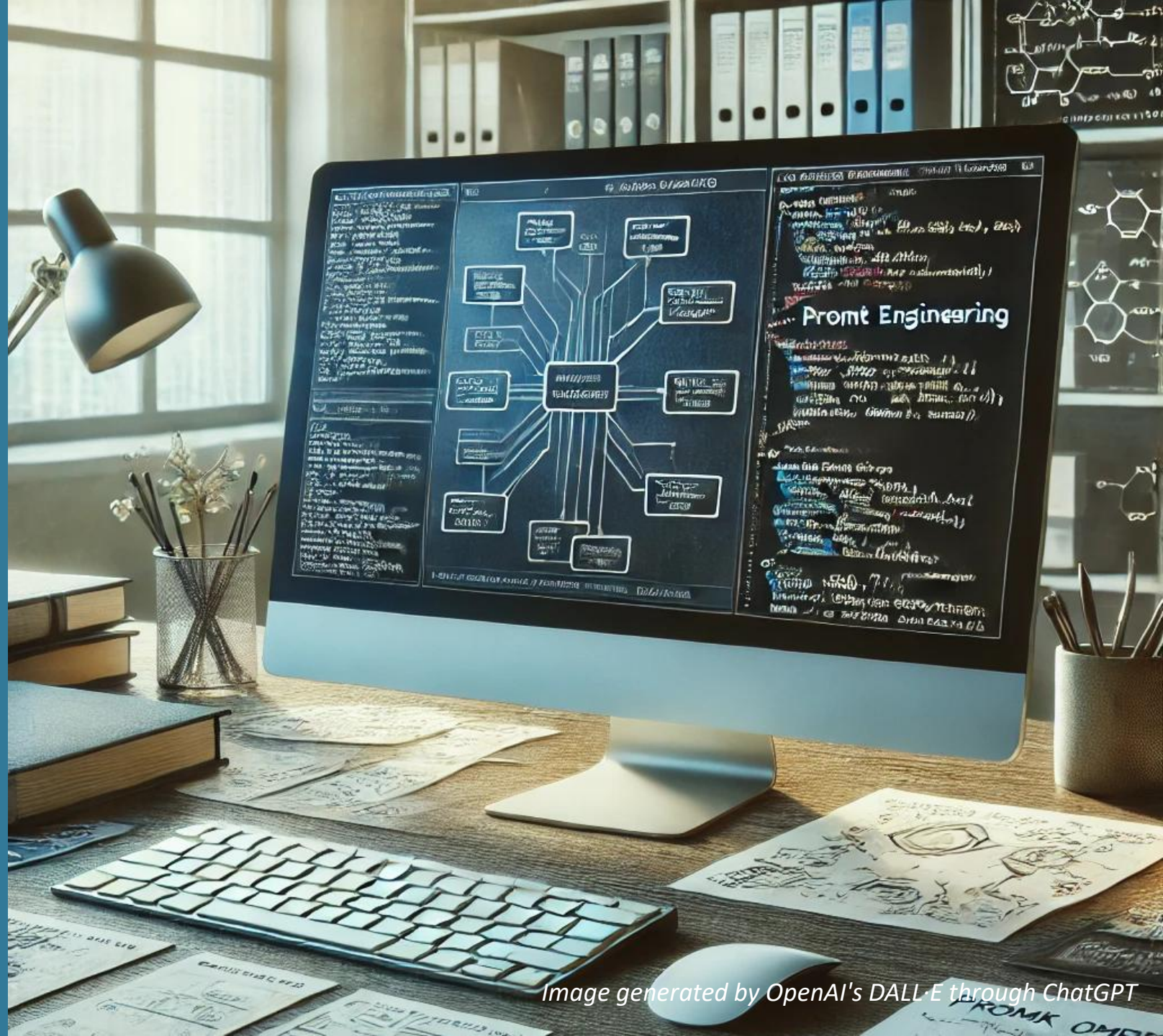


Image generated by OpenAI's DALL-E through ChatGPT



# What Is Prompt Engineering?

- Prompt engineering is the practice of designing and optimizing input prompts for AI language models to generate more accurate, relevant, and useful outputs
- Purpose: enhance the AI's understanding of the task
- Key elements:
  - Context: setting the stage for the AI to understand the environment of the task
  - Specificity: providing detailed instructions to narrow down potential responses
  - Iteration: refining prompts over time for improved results

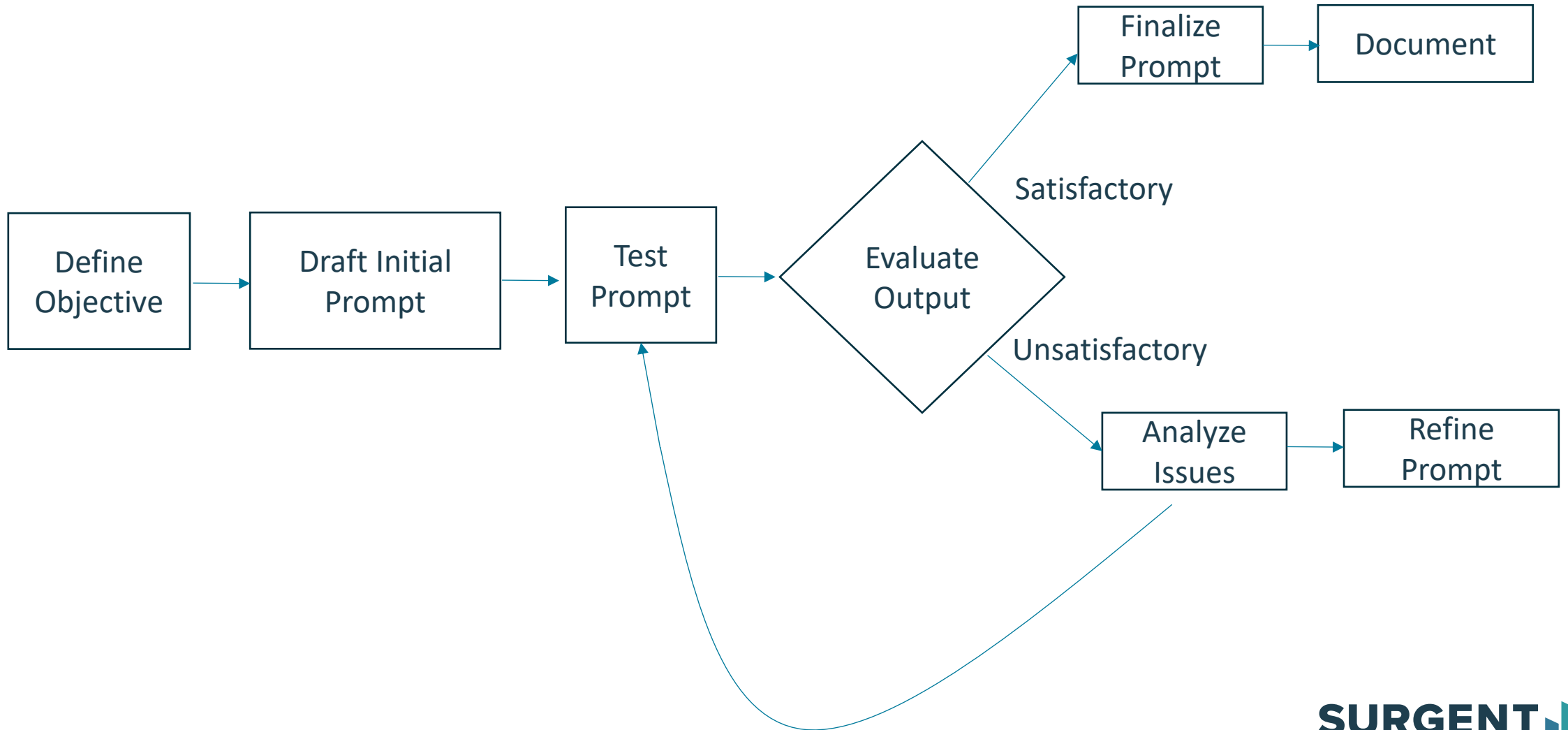


# Relevance and Importance to Accounting

- Improved efficiency in data analysis and reporting
- Enhanced accuracy in financial modeling and forecasting
- Streamlined audit processes
- Better client communication and consultation
- Continuous learning and adaptation to new accounting standards



# Process of Prompt Engineering







# Common Prompt Engineering Techniques

## Zero-shot prompting:

AI generates a response without any examples

## Few-shot prompting:

Providing a few examples to guide the AI's understanding

## Chain-of-thought:

Asking the AI to explain its reasoning step-by-step

## Tree-of-thought:

Exploring multiple reasoning paths simultaneously

## Role-playing:

Assigning a specific role to the AI (e.g., "Act as an experienced CPA")

## Interview pattern:

Using a series of questions to gather information systematically





# Zero-shot Prompting

- Zero-shot prompting: AI generates a response without any examples
- Example:
  - “Calculate the depreciation expense for a machine that costs \$100,000, has a salvage value of \$10,000, and a useful life of 5 years using the straight-line method.”



# Few-shot Prompting

- Few-shot prompting: providing a few examples to guide the AI's understanding
- Example task: generate an income statement
- Prompt:
  - “Here are two examples of income statements:
    - Example 1: [Revenue: \$500,000, Expenses: \$300,000, Net Income: \$200,000]
    - Example 2: [Revenue: \$750,000, Expenses: \$500,000, Net Income: \$250,000]
  - Now, generate an income statement for a company with \$600,000 in revenue and \$400,000 in expenses.”
- AI output: AI system generates an income statement with the given revenue and expenses, following the format provided in the examples



# Chain-of-thought Prompting

- Chain-of-thought: asking the AI to explain its reasoning step-by-step
- Example:
  - “Calculate the net present value of a project with an initial investment of \$100,000 and annual cash flows of \$30,000 for 5 years, using a discount rate of 8%. Show your work step-by-step.”



# Tree-of-thought Prompting

- Tree-of-thought: Exploring multiple reasoning paths simultaneously
- Example:
  - “Analyze the potential tax implications of a company expanding operations into a new state. Consider scenarios for both establishing a physical presence and operating remotely.”

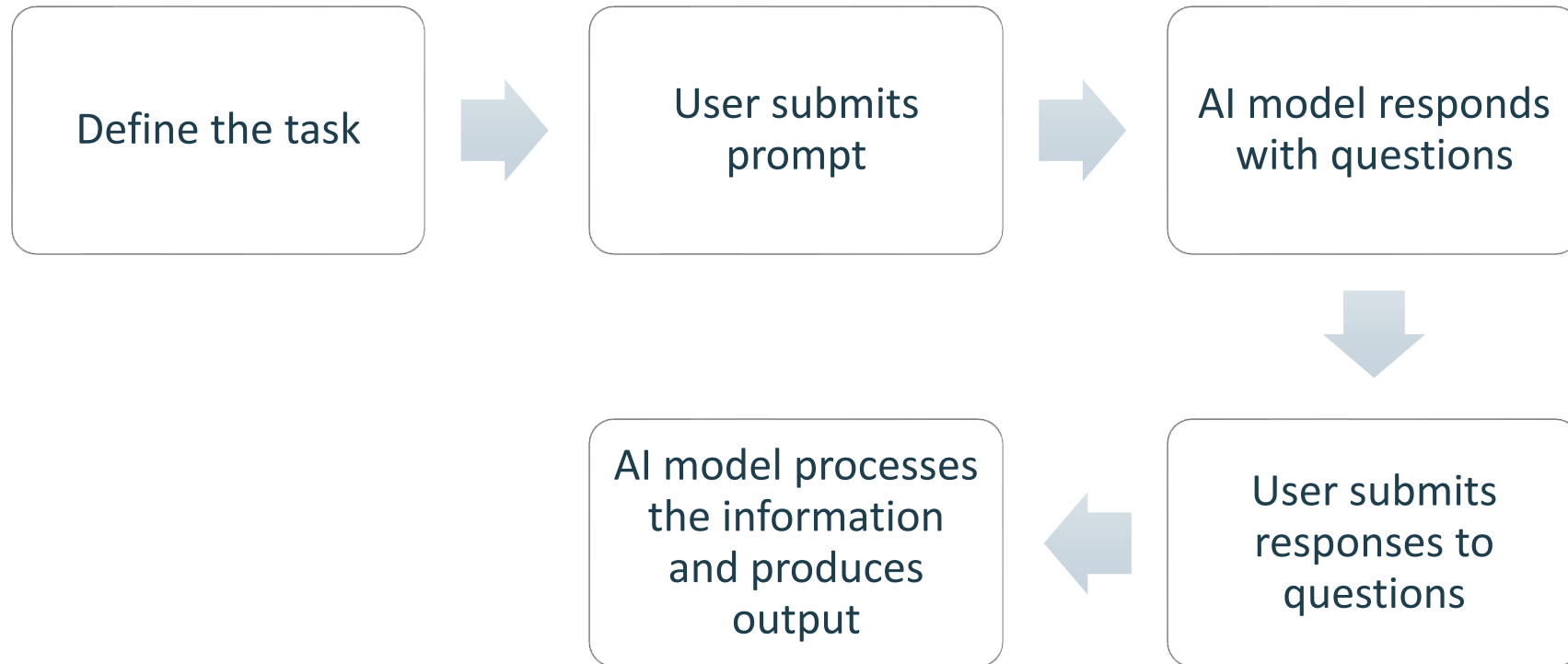


# Role-playing

- Role-playing: Assigning a specific role to the AI
- Example:
  - “Act as an experienced forensic accountant. What are the key steps you would take to investigate potential financial fraud in a medium-sized manufacturing company?”

# Interview Pattern Technique

Interview pattern: designing prompts that simulate an interview





## Interview Pattern Technique

You will act as a CFO and CPA for a non-profit organization. You will interview me, asking me all the relevant questions necessary for you to generate the best possible answers to my questions. You want to implement a new payroll provider. What are the best practices for evaluating and selecting a new payroll provider?

Great, I'm ready to dive into this. To provide the best advice on evaluating and selecting a new payroll provider for our non-profit organization, I'll need to gather some key information from you. Let's start with the following questions:

1. **Current Payroll System:** What payroll system are we currently using, and what are the main reasons for considering a switch? Are there specific issues, such as cost, service quality, or compliance concerns?
2. **Employee Base:** How many employees does our organization have, and what is the nature of their employment (e.g., full-time, part-time, contractors)? Are there any specific payroll complexities, such as multiple locations, varied pay cycles, or different benefits packages?
3. **Non-Profit Specific Needs:** As a non-profit, do we have any unique payroll needs, such as managing grant-funded employees or tracking volunteer stipends? Are there any specific compliance requirements or reporting needs tied to our non-profit status?
4. **Budget:** What is our budget for payroll services? Are there any cost constraints or considerations, such as preferring a flat fee versus a per-employee fee structure?
5. **Integration with Existing Systems:** What other systems do we use that would need to integrate with the new payroll provider (e.g., accounting software, HR systems, time-tracking tools)? How important is seamless integration for our operations?

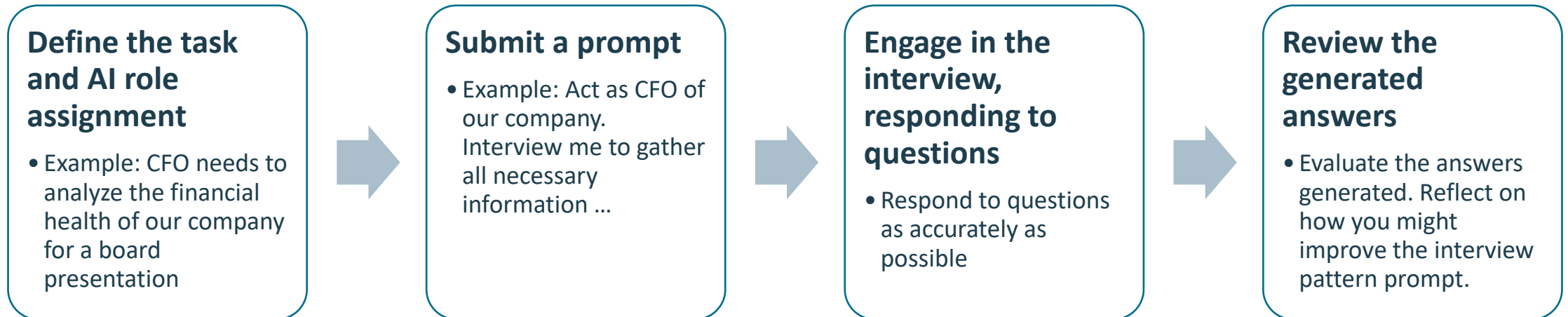
Source: Output from ChatGPT

# Prompt Creation Challenge Lab

Objective: create a prompt  
using the interview pattern  
technique



# Interview Pattern Technique Lab





# Prompt Engineering Tools

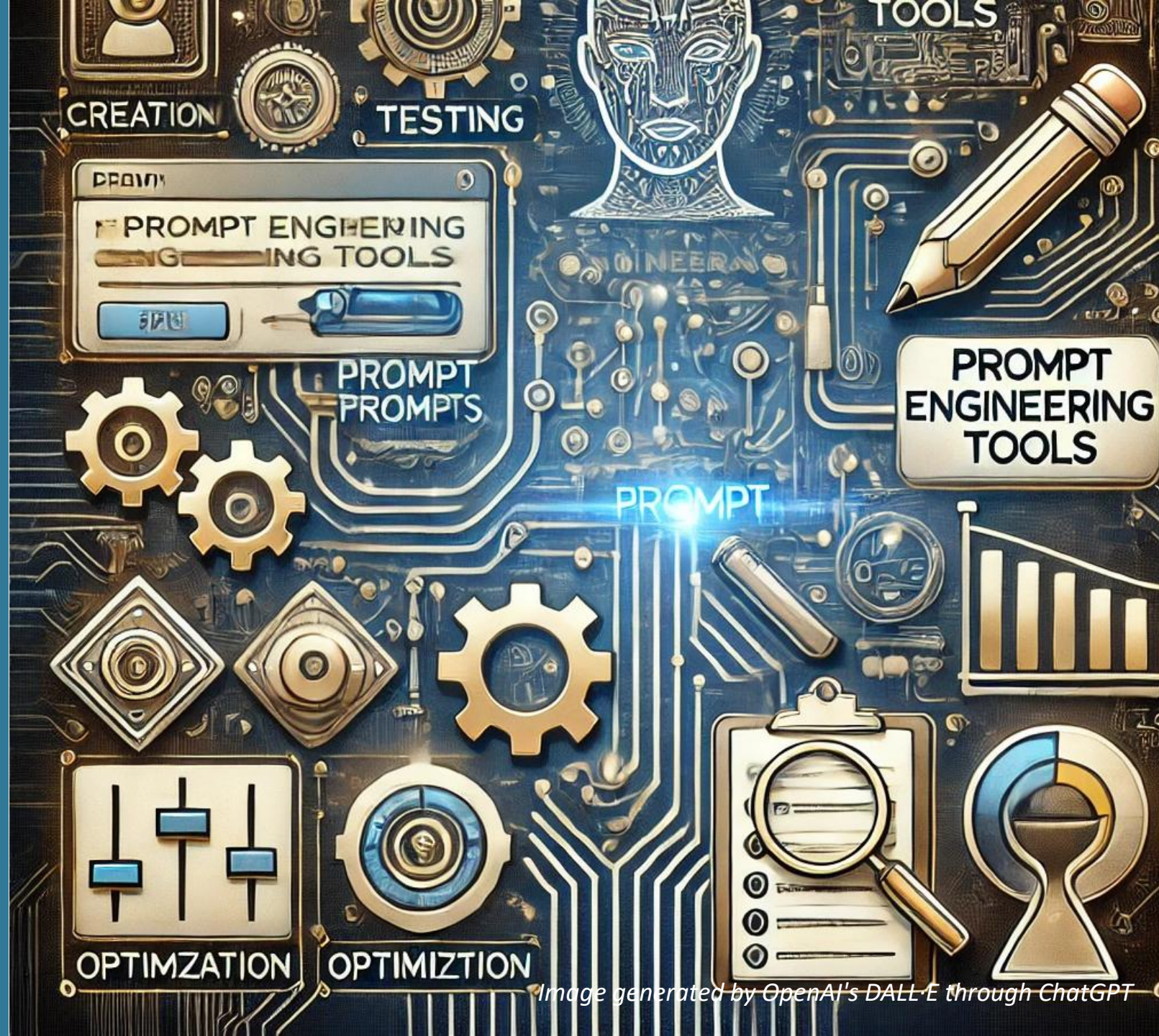


Image generated by OpenAI's DALL-E through ChatGPT



# What Are Prompt Engineering Tools?

- Prompt engineering tools: tools designed to assist in the creation, refinement, and testing of prompts for generative AI models:
  - Essential for improving the accuracy, relevance, and reliability of AI outputs
- Examples:
  - OpenAI Playground
  - AI21 Studio
  - Cohere's RAG (retrieval-augmented generation)
  - LangChain
  - PromptPerfect



# Categories of Prompt Engineering Tools

- Prompt creation tools:
  - Assist in designing effective prompts
- Prompt testing tools:
  - Allow users to test prompts against various AI models
- Optimization tools:
  - Help in refining and optimizing prompts based on output analysis





# Best Practices for Using Prompt Engineering Tools

- Start simple: begin with basic prompts and gradually increase complexity
- Iterate often: use testing and optimization tools to refine prompts continuously
- Document your process: keep a log of prompts and outcomes for future reference
- Stay updated: prompt engineering tools are evolving; stay informed about new features and updates



# Discussion Prompt

Reflect on the various prompt engineering techniques we've discussed. Which technique do you find the most interesting or effective?

Thank you!