2024
**Research
Analytics
Summit**
Building Capacity, Empowering Skill Transfer,
and Energizing a Growing Community

Discussion Session
The Role of AI in Research
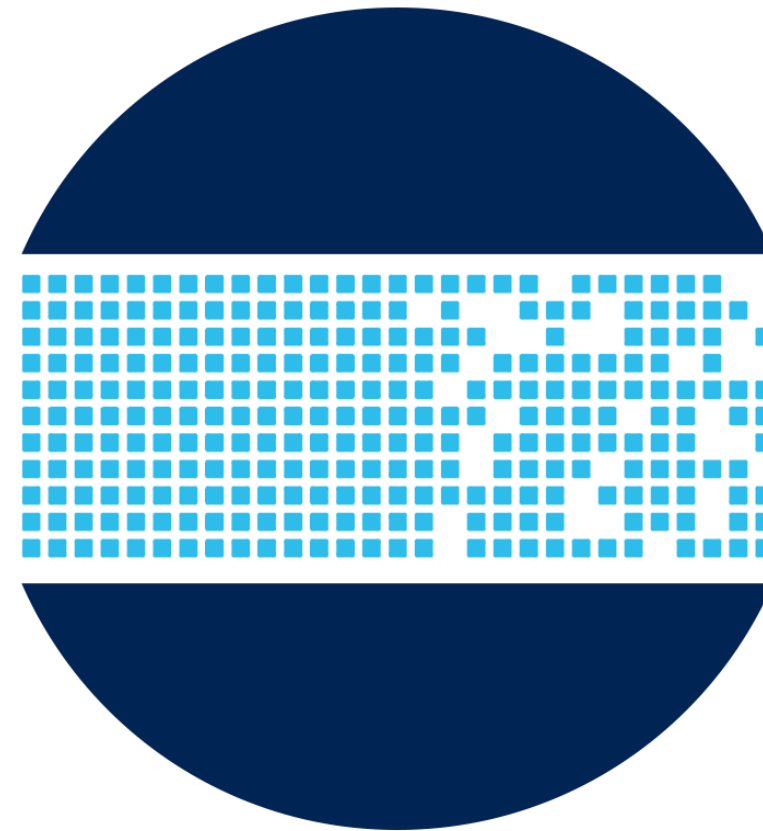
Robert Pilgrim, rpilgrim@uark.edu

Check out my blog

Connect with me

The Role of AI in Research

A. How can AI contribute to institutional research development?

B. Identify internal and external collaborators?

C. Matching Strategic Research Themes with Potential Funders

D. Can AI Increase the Yield on Proposals

*Example ChatGPT prompts on last slide

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Robert Pilgrim, rpilgrim@uark.edu
https://researchanalytics.substack.com/
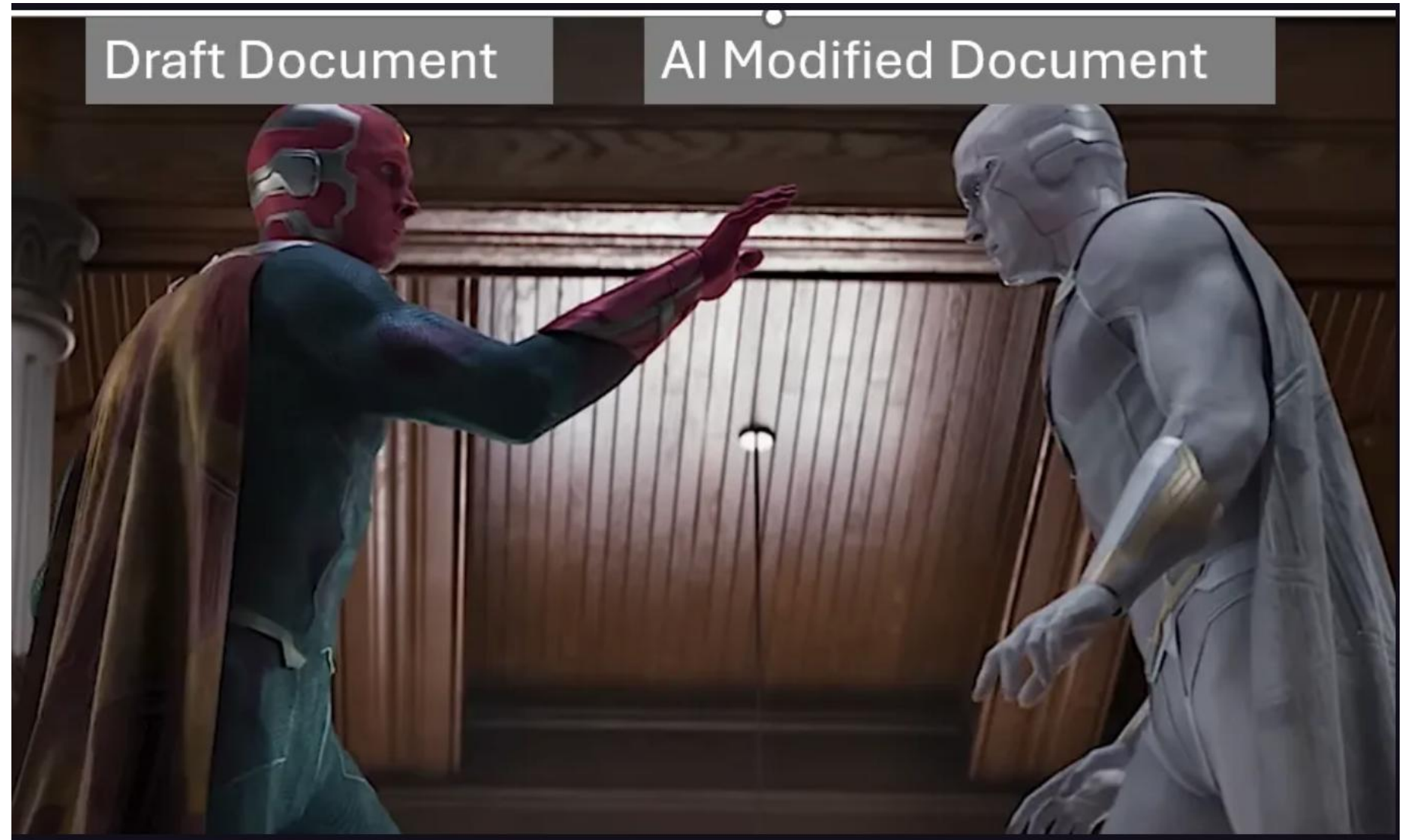
My Background | Spare Time

- In my "Spare" time over last 15months
  - Hundreds of hours in "Prompt Engineering"
    - What is prompt engineering?
  - ChatGPT, Claude | Chat Bots
  - Stack-AI | Build AI based web apps
  - Team-GPT | Build a prompt library
  - Speechify Studio, elevanlabs | Text to Speech
  - Invideo.ai | Text to Video
  - Mid Journey | Text to images

Overview

- This is a low-level discussion
- Who is using AI either in or out of work
    - What are you using it for
- Are you paying out of your own pocket for any AI platforms
- Ship of Theseus Paradox
- Thoughts on using an AI for proposal development
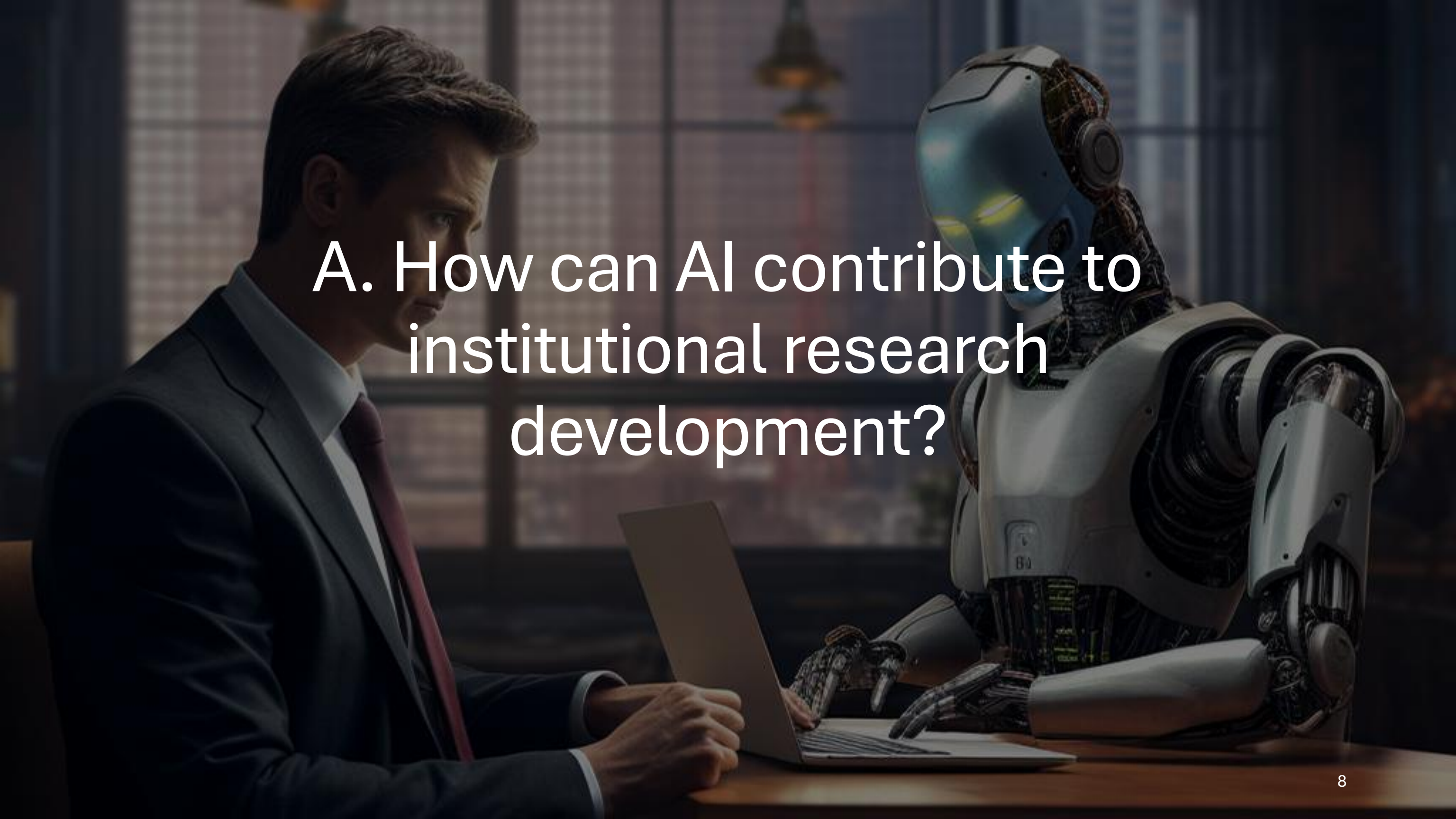
When does text stop being original

The Ship of Theseus is a philosophical paradox that explores identity. Imagine a ship where every part is replaced over time. Is it still the same ship? If all the original parts are used to build a new ship, which one is the real Ship of Theseus? This thought experiment raises complex questions about the nature of identity and change.

A Philosophical Exploration of Human-AI Collaboration in Authorship (substack.com)

Personal Assistant

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Thoughts on Using AI to
help write proposals?

A. How can AI contribute to institutional research development?

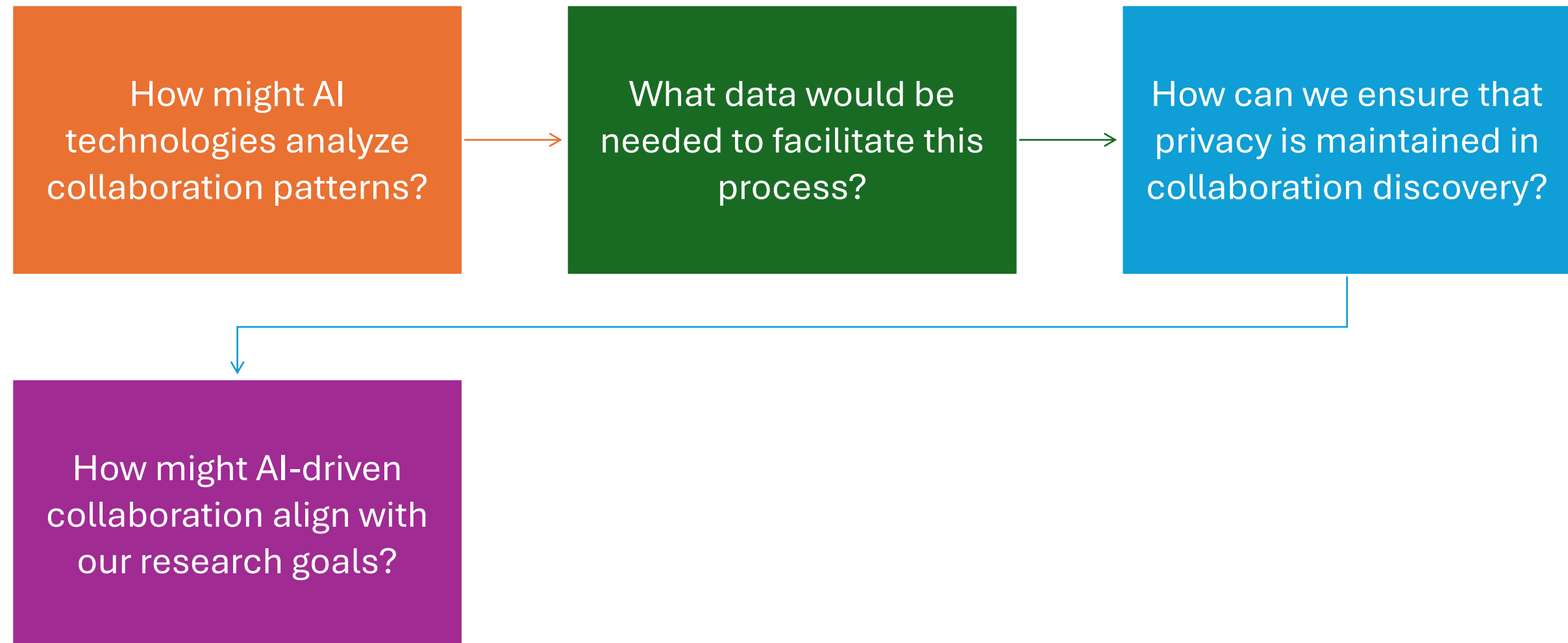# A. How can AI contribute to institutional research development?

- What are people doing now?
- What is on the roadmap?
- Initial steps to integrate AI into our existing research processes?
- How can we measure the success of AI in enhancing our research capabilities, and what benchmarks or key performance indicators should we consider to evaluate the effectiveness of AI integration?

B. Identify internal and external collaborators?

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How might AI technologies analyze collaboration patterns? → What data would be needed to facilitate this process? → How can we ensure that privacy is maintained in collaboration discovery?

How might AI-driven collaboration align with our research goals?

C. Matching Strategic Research Themes with Potential Funders

C. Matching Strategic Research Themes with Potential Funders

How could AI algorithms analyze and identify relevant funding opportunities?
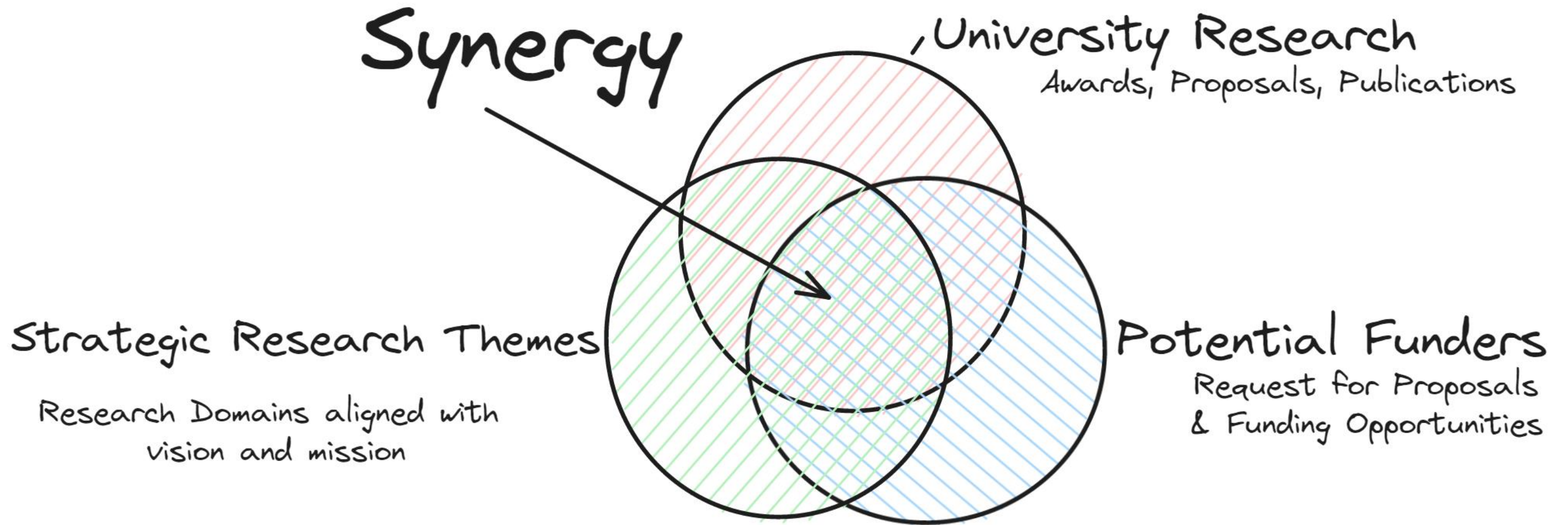
How might we train an AI system to understand our research themes?

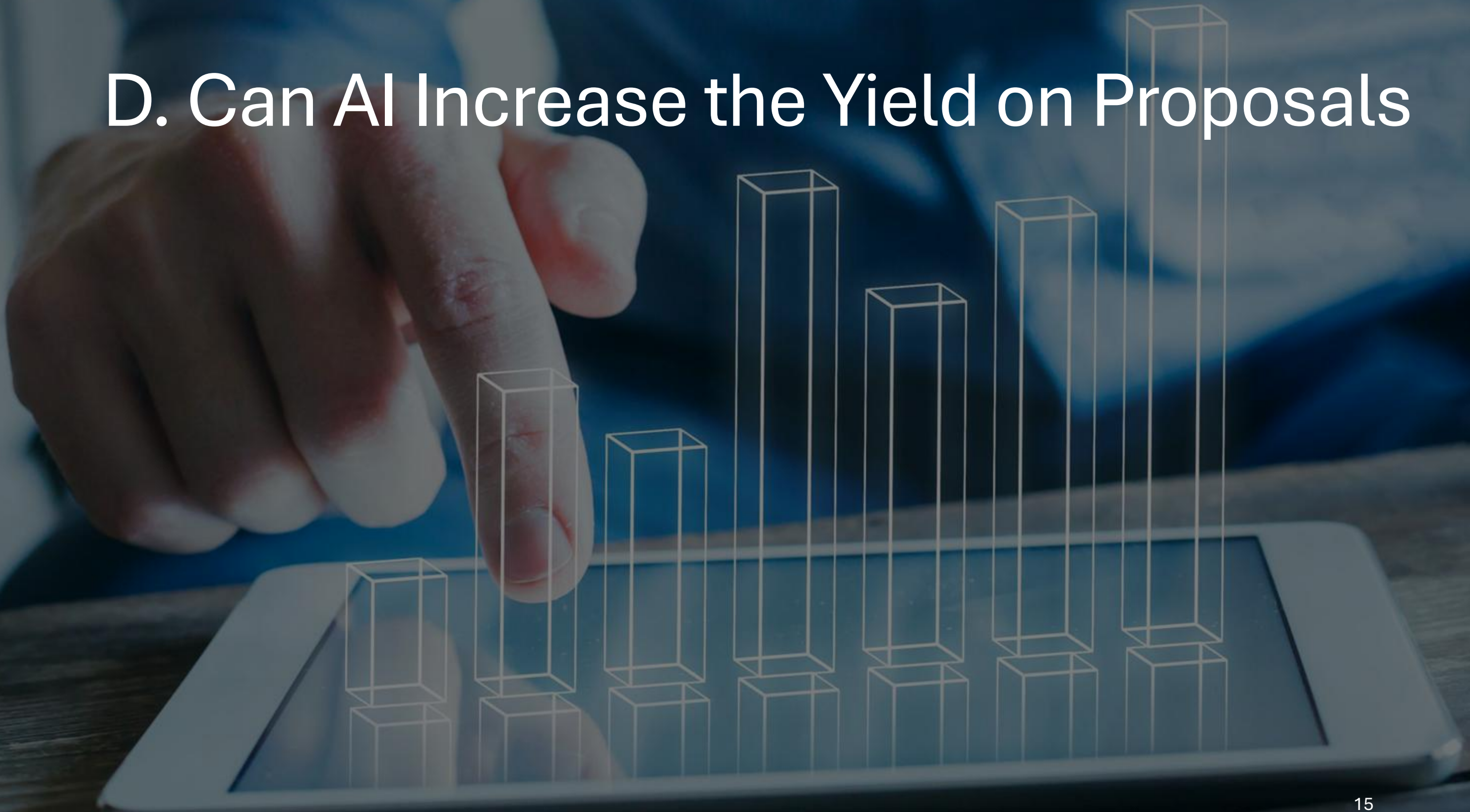What ethical considerations should guide AI's role in this process?

How do we evaluate the success of such matching?

Synergy

University Research
Awards, Proposals, Publications

Strategic Research Themes
Research Domains aligned with
vision and mission

Potential Funders
Request for Proposals
& Funding Opportunities

Levering AI to do more than just keyword analysis
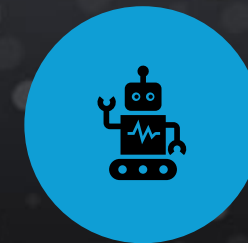
D. Can AI Increase the Yield on Proposals

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How might AI contribute to enhancing proposal quality?

Can AI-driven analytics identify trends in successful proposals?

What data should be used to train AI for proposal enhancement?

How do we ensure that the human touch remains in AI-assisted proposals?

What are the risks and how might they be mitigated?

Applications

Writing Assistance
- Review and improve proposal drafts by checking grammar, style, and clarity.

Literature Search Assistance
- Identify relevant research articles, journals, and publications

Tailoring Proposals
- Assist in aligning the language and emphasis of the proposal with a specific funder's priorities.

Multidisciplinary Collaboration
- Provide information on different fields to aid in integrating diverse perspectives.

Accessibility
- Help in translating technical jargon into more accessible language.
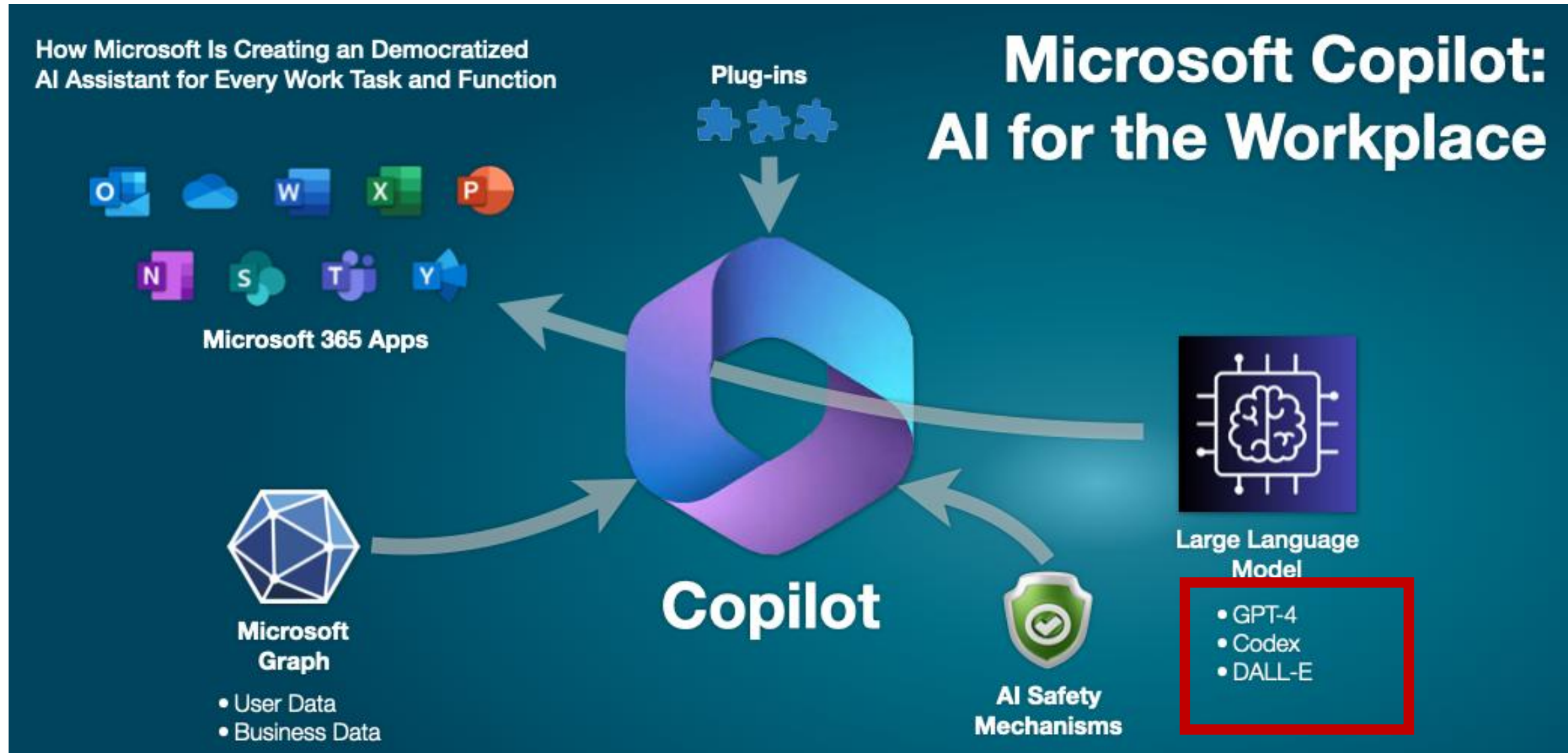
Mock Reviews
- Create a series of questions or evaluation criteria for conducting a "mock review" of the proposal

Staying Up-to-Date
- Assist in synthesizing information from various funding agencies and keeping informed about updates.

Soon Every Microsoft Product will have AI Built in

- Every researcher will be using Chat GPT4 to improve their proposals

What would a sponsored research version of this look like?

GPTs are GPTs: An Early Look at the Labor Market Impact
Potential of Large Language Models

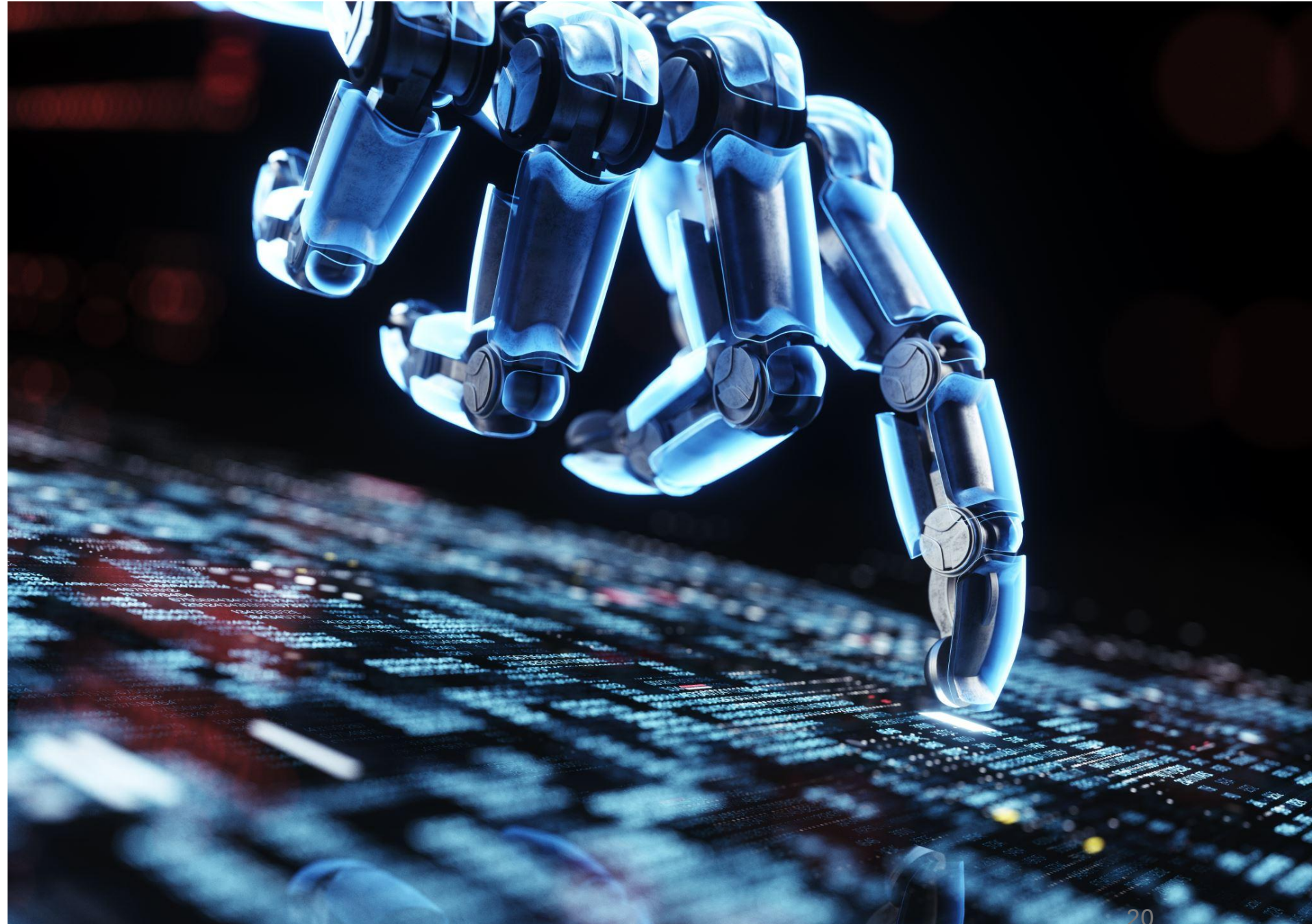Tyna Eloundou[1], Sam Manning[1,2], Pamela Mishkin*[1], and Daniel Rock[3]

[1]OpenAI
[2]OpenResearch
[3]University of Pennsylvania

March 27, 2023

Just another Piece of Technology?

- NO!

- It is one of the biggest disrupters of our time due to the speed it is advancing.

Just another Piece of Technology?

Not Leveraging AI

Leveraging AI (Now)
Dial-Up Internet!

Leveraging AI
Fiber-optic internet speed

12 Months Ago

Today

Near Future

Open AI Research Study on Job Market

- 80% of the American workforce belonged to an occupation where at least 10% of their tasks can be done (or aided) by AI.

- One-fifth of the workforce belonged to an occupation where 50% of work tasks would be impacted by artificial intelligence.

GPTs are GPTs: An Early Look at the Labor Market Impact Potential of Large Language Models

Tyna Eloundou[1], Sam Manning[1,2], Pamela Mishkin*[1], and Daniel Rock[3]

[1]OpenAI
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High expose means 50% or more of that job will be done, or aided by AI

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Study on AI Impact on US Workforce in the Near Future

GPTs are GPTs: An Early Look at the Labor Market Impact
Potential of Large Language Models

Tyna Eloundou[1], Sam Manning[1,2], Pamela Mishkin*[1], and Daniel Rock[3]
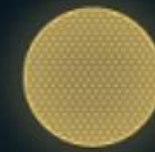
[1]OpenAI
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What **jobs** are exposed to GPT?

● Low Exposure   ● High Exposure

Low Exposure
- 👤 Athletes
- 👤 Automotive Repairers
- 👤 Cement Masons
- 👤 Cooks
- 👤 Pile Driver Operators
- 👤 Stonemasons
- 👤 Tire Repairers and Changers
- 👤 Dishwashers
- 👤 Carpenter Helpers

High Exposure
- 👤 Interpreters + Translators
- 👤 Survey Researchers
- 👤 Writers and Authors
- 👤 Public Relations Specialists
- 👤 Tax Preparers
- 👤 Mathematicians
- 👤 Blockchain Engineers
- 👤 Proofreaders and Copy Markers
- 👤 Accountants and Auditors

High expose means 50% or more of that job will be done, or aided by AI

OpenAI's Recommendation for Government Focus

Prepare for economic disruption

Reform education policy

Reform worker training policy

Reform safety net programs
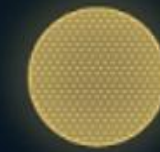
Study Results on Job Market Impact of AI

-

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Image Generation

- Karate Cat
- Spiderman as a pig
- Realistic, drawing, girl
- A female worker sat opposite an AI robot , both on a laptop
- Wide angled selfie surfboarding in space with a spacesuit

Demo ChatGPT Prompt

I am attending a 2 day executive leadership summit on the role of AI and its impact on sponsored research. The audience will be senior leadership with basic knowledge of the topic, we want to have thought provoking questions that allow for in depth discussion

Write me a short story inspired from the movie "Hunger Games" except I want you to make it with a cat theme, replace humans with cats and use cat like names and references

I want to apply for a proposal to NSF I have a background an undergraduate in Astrophysics with a Ph.D. in Space science, I want to team up with a research from the field of educational statistic, what could we, with our combined skillsets be most suited for, and why?

Real Proposal to play with

bunce_nsf_proposal_2011_rejected.pdf (wordpress.com)

from here Sample NSF Proposals | John Bunce (wordpress.com)