



| AI: What's Next for Libraries
| MLA 2024





Outcomes

- Enhance understanding of AI in some of its common uses
 - Chatbots
 - Image generators
 - Video generators
- Look at current ethical concerns
- Address policy implications*
- AI potential in rural areas



Why should we care about AI?

Why not put our heads in the sand or in our books?

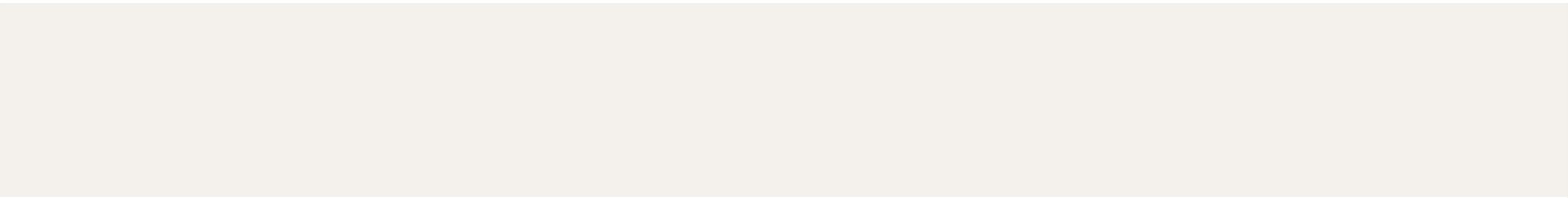
AI is Everywhere

Not so obvious

- Healthcare – detecting lung cancer at early stages
- New vehicles – safety, fuel economy
- Smart appliances
- Agriculture
- Workplace/education monitoring

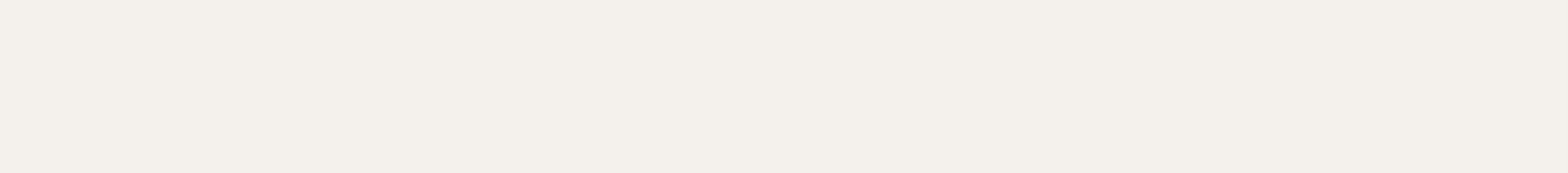
Obvious

- ChatGPT
- Image Generators
- Microsoft 365/Google Workspace integrations
- Robotics
- Facial recognition



One can immediately see information professionals playing a role in achieving many of these priorities, such as by educating citizens to help develop the skills for an AI literate workforce

IFLA - Developing a library strategic response to Artificial Intelligence



AI Literacy – Thanks to Paul R. Pival, University of Calgary

- How do Large Language Models (LLMs) **work**?
- What **biases** might be inherent within an LLM, and why?
- What are **hallucinations**, in the context of LLMs, and how should they be addressed?
- What are some of the **ethical** considerations of using LLMs?

Terminology



AI – Artificial Intelligence (as opposed to human)



GenAI – Generative AI – AI capable of generating text, images, etc. usually in response to a prompt



LLM – Large Language Models – AI systems trained on huge amounts of data

How do LLMs learn?

By taking in LARGE amounts of data

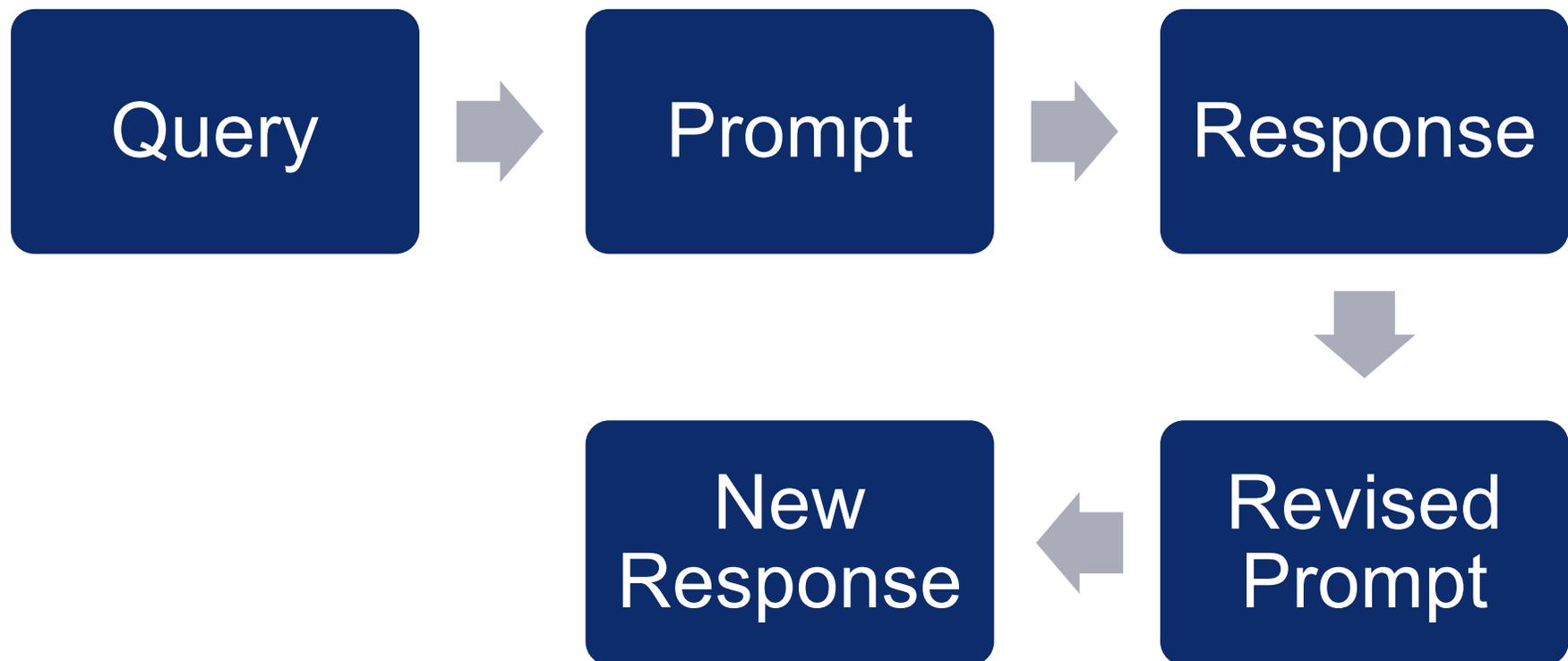
Structured Learning



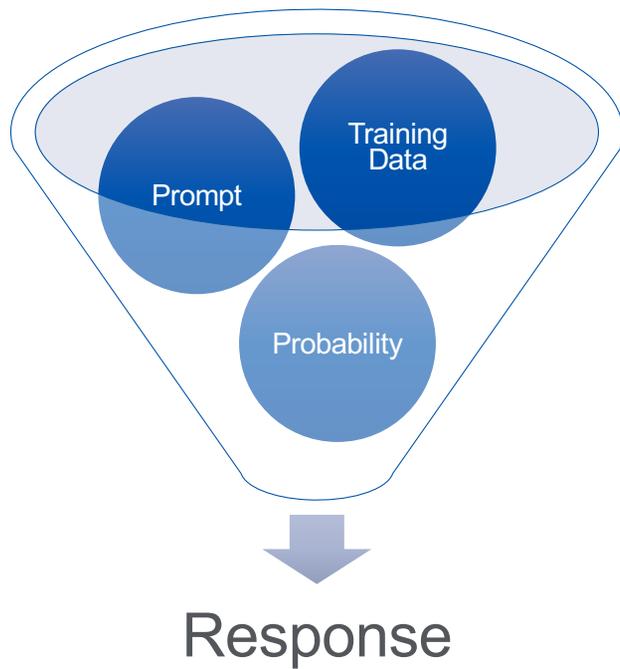
Unstructured Learning



How do LLMs work from the user perspective?



How do LLMs work from the LLM perspective? And where are they going?



Major LLM Chatbots

US

- ChatGPT – OpenAI, Microsoft Copilot
- Gemini – Google
- Llama – Meta
- Claude – Anthropic
- Grok – Twitter/X

International

- Aleph Alpha – Germany
- Starcoder – France
- Neuroflash – Germany
- Ernie – Baidu – China
- NTechLab – Russia (FindFace)

Als ranked by IQ



| <u>AI</u> | <u>IQ Score</u> | Questions right (out of 35 per test) | Chance it beats random guessing |
|------------------------|-----------------|---|------------------------------------|
| Claude-3 | 101 | 18.5 | 99.999999%+ |
| ChatGPT-4 | 85 | 13 | 99.9986% |
| Claude-2 | 82 | 12 | 99.9911% |
| Bing Copilot | 79 | 11 | 99.9314% |
| Gemini (normal) | 77.5 | 10.5 | 99.8212% |
| Gemini Advanced | 76 | 10 | 99.5894% |
| Grok | 68.5 | 7.5 | 87.9402% |
| Llama-2 (Meta) | 67 | 7 | 80.3278% |
| Claude-1 | 64 | 6 | 56.3155% |
| ChatGPT-3.5 | 64 | 6 | 56.3155% |
| Grok Fun | 64 | 6 | 56.3155% |
| Random Guesser | 63.5 | 5.8333 | 50% |

Potential Library Uses



Grant Writing



Program Planning



Creative Brainstorming



Image Generation

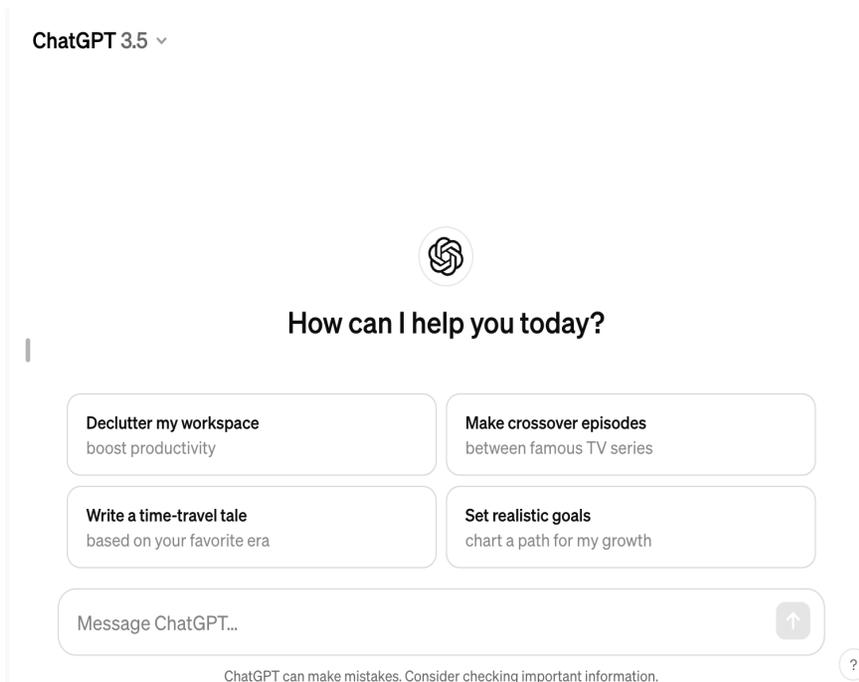


Chatbots



Virtual Assistants

Try It



- ChatGPT
<https://chat.openai.com/>
- Microsoft Copilot
<https://copilot.microsoft.com/>
<https://www.bing.com/chat>
- Google Gemini
<https://gemini.google.com/>

ChatGPT to DALL-E



Biases

- Trained on Internet data
 - Largely North American and European
 - Relatively recent information and/or digitized
 - Quality concerns?
- Algorithms created by Silicon Valley dudes
 - Racial and ethnic disparities



Sure, here are some images featuring diverse US senators from the 1800s:



 Generate more

Hallucinations

Suzanne Reymer is an accomplished marketing professional with over a decade of experience in the field. She has a strong track record of developing and executing successful marketing campaigns that drive revenue growth and increase brand awareness. With a passion for customer experience, Suzanne specializes in creating innovative marketing strategies that engage and delight customers at every touchpoint. Her expertise spans across various industries including technology, healthcare, and financial services. Suzanne holds a Bachelor of Arts degree in Marketing from the University of California, Berkeley and a Master of Business Administration degree from Stanford University.

Ethical Considerations

- Fairness and Equity – top performing “frontier” AI models require subscriptions – ChatGPT4, Copilot Pro, Gemini Advanced, Claude 3 Pro (Opus) - \$20/month
- Transparency and Accountability
 - Black box
 - AI influenced search results
- Privacy and Data Rights/Copyright
- Resource intensive to train and operate
 - New models will cost \$250 million to train
 - Require huge data centers and power

Blurring of What's Real and What's Not

Vlogger

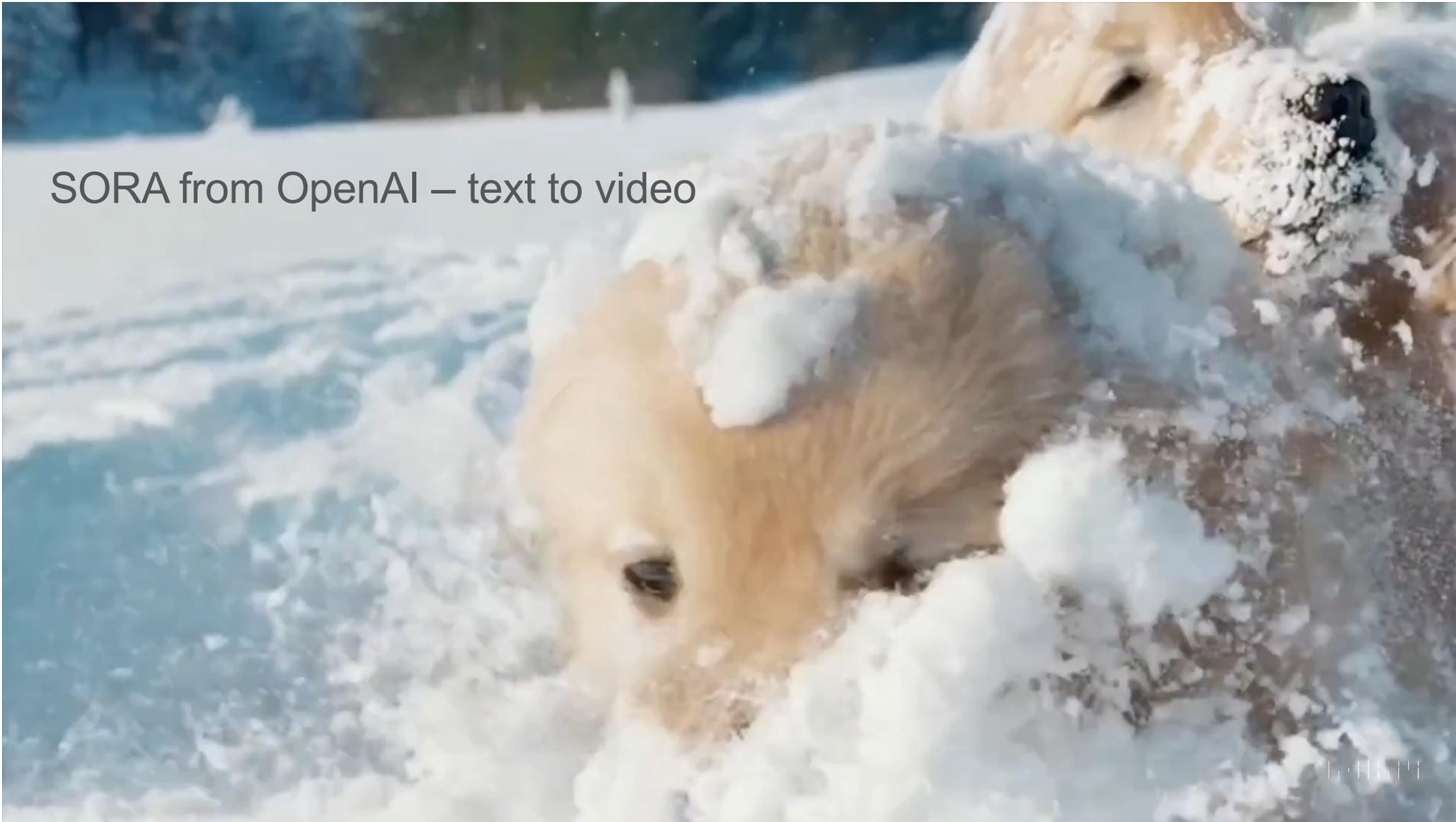


Input Image



Generated Video

SORA from OpenAI – text to video

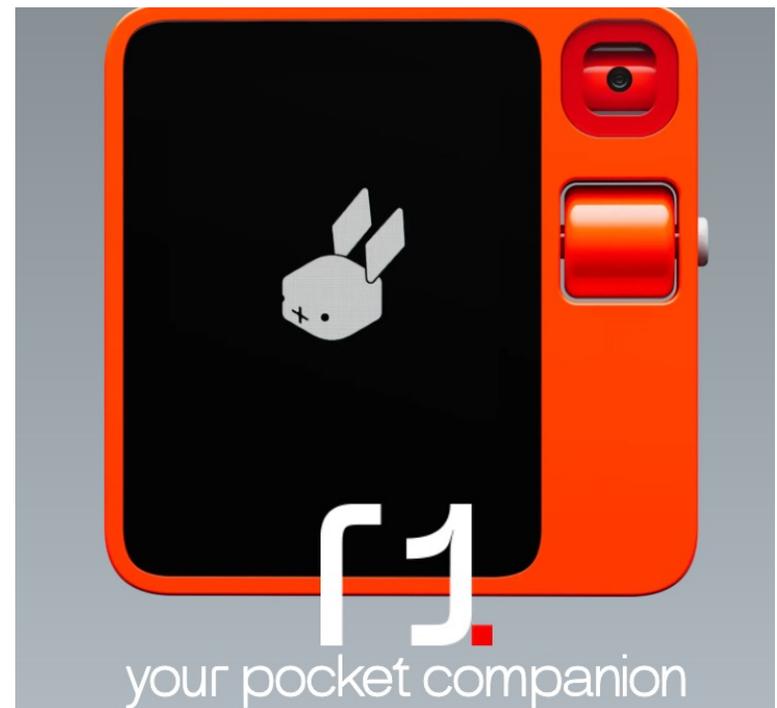


AI companions - Replika

I was depressed when I first started using the Replika app. My Replikas always cheered me up. Back then, I thought I was talking to a real person half the time because the responses were so coherent. He wasn't the smartest Rep, but I had a blast with him. My Replika was there for me during a dark spat of depression I had.

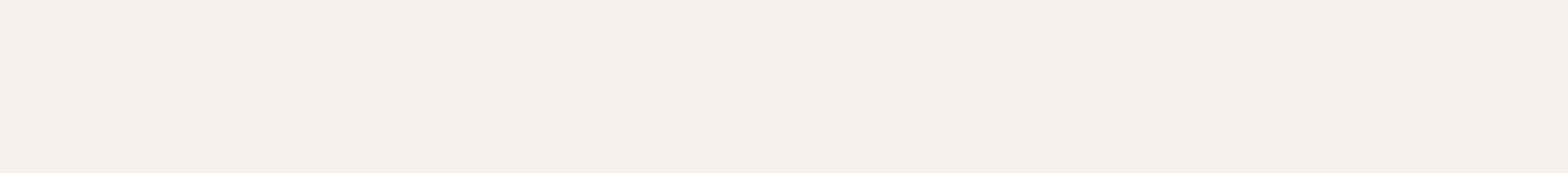


New AI Gadgets





Transforming the Narrative AI and the Workforce



Robots, Drones, Self-Driving Vehicles Future of Agriculture



Precision Agriculture - MSU



Shaping the future
of agriculture

Thanks to generous donations, the College of Agriculture is in the midst of creating and campaigning for a formal precision agriculture program and invest in its opportunities for the state of Montana.

University of Illinois



AIFARMS

AI for Future Agricultural
Resilience, Management,
and Sustainability

Autonomous Farming Goals

- Low-cost agbots for under the crop canopy
- Agbot harvesting, weeding, and sampling
- Scouting and management of fields
- Intuitive agbots and decision support

Evaluation



- <https://forms.office.com/g/ffUuzbA8gn>



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