



# ChatGPT and its Impact on Libraries

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# Introductions

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Leah DiCiesare - STEM and Open Science Librarian

Benjamin Shaw - Teaching and Learning Librarian

Joseph Kovisto - Head of Consortial Digital Initiatives, CLAS

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# How familiar are you with ChatGPT?

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Voting code: 2416 8002



# Nima -Intro to Chat GPT

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- ChatGPT is an AI chatbot developed by OpenAI that is designed to provide human-like conversational interactions. It is built on large language models (LLMs)
- LLMs are advanced machine learning models that can understand and generate natural language.
- GPT: Generative Pre-trained Transformer

# Nima -Intro to Chat GPT

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- What is machine learning?
  - A branch of artificial intelligence (AI) which uses data and algorithms to imitate some of methods that humans use to learn.
  - Gradually improves its accuracy through the process of training
- Applications of machine learning:
  - Image Recognition; Speech Recognition; Traffic prediction; Product recommendations; Online Spam and Fraud Detection; Medical Diagnosis
  - Image, music, and video generation; AI chatbots; Personalization (education, coaching, UX)

# Nima -Intro to Chat GPT

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- Different types of machine learning models
  - **Generative** models that can generate new data instances.
  - **Discriminative** models discriminate between different kinds of data instances.
- Different training approaches:
  - Supervised
  - Unsupervised
  - Semi-supervised
- Transformers:
  - Deep learning architectures that learn context, and thus meaning, by tracking relationships in sequential data like words in a sentence

# Nima -Intro to Chat GPT

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- Chat GPT is a large language model (LLM)
  - Trained and fine-tuned on hundreds of Billions of words to learn patterns and relationships between words and phrases
  - The primary source of its training data is web-scraped text data from articles, blogs, etc from over 5 million websites. It also uses books and other sources of text data.
  - 175 billion model parameters, 96 layers

What's going on in libraries?

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# Ben - Instruction

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- Primary conversation so far around ChatGPT: possibility for plagiarism and cheating, and how to counteract this
- Moving beyond the plagiarism conversation -> responsible & informed users of new technology
- Information literacy and critical thinking about AI are going to be important skills in the next few years
- Techniques we already use – lateral reading, citation chaining

# Ben - Instruction

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## Teaching around ChatGPT & iterative changes:

- The technology will change & update rapidly year by year (or semester by semester), staying on top of current capabilities
- Will depend on how the technology is being taught about in high school & before - we will necessarily be responding to this

## Current conversation in library literature:

- Prompt engineering as an information literacy skill
- Making sure currently taught skills don't atrophy
- Teaching students to analyze and fact-check AI
- [Salt Lake Community College LibGuide - AI, ChatGPT, and the Library](#)

# Ben - Instruction

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## Things we can teach:

- Fact-checking AI-generated text
- What ChatGPT is and is not, and what it should and should not be used for
  - *Ex. ChatGPT is good for summarizing or rephrasing a text, but it's not a good place to start a search for information*
- Broader awareness that AI can generate incorrect information, "ghost citations," etc.
- Official citation formats for AI-generated text ([MLA](#) / [APA](#) / [Chicago](#))

## Things we can avoid:

- Saying the same thing about AI to every class that enters the library
- Echoing what their high school teachers are saying
- Framing AI as a bad thing to always avoid
- Framing the conversation around plagiarism
- Uncritically talking about AI as a technology without downsides

# Leah - STEM Education and Research

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- Similar concerns for classroom teaching as in social sciences & humanities
  - Using it to complete homework assignments without adding critical thinking
  - Needing to adjust assignments to factor in ChatGPT, either using it and critically analyzing it or making assignments that cannot use it
- ChatGPT has difficulty solving complex problems
- AI is not as new of a concept in STEM education
  - WolframAlpha and technology to solve math problems
- But ChatGPT has different abilities that STEM is also not used to dealing with, specifically the text-generation

# Leah - STEM Education and Research

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- ChatGPT being used as a type of research assistant
  - Summarizing literature, data analysis, writing and editing code, editing written work
- More specialized AI tools coming out
  - Ex. Reaxys Predictive Retrosynthesis for Chemistry
- AI Research falls under STEM
  - Make sure we have resources to support them
- Consider ethical issues when using ChatGPT and AI in research work

# Joseph - Beyond Libraries & Critical Considerations

- Generative AI becoming increasingly prevalent in daily life
  - GPT-4
  - ChatGPT
  - AlphaCode
  - GitHub Copilot
  - Bard
  - Cohere Generate
  - Claude
  - DALL-E 2
  - Synthesia
  - Adobe Generative AI
  - Stable Diffusion
  - Midjourney
  - LLaMA
  - OpenAI Codex

# Joseph - Beyond Libraries & Critical Considerations

- Artificial intelligence is integrating into all stages of scholarly research and practice
  - **Medical research** – *'Ethical challenges regarding artificial intelligence in medicine from the perspective of scientific editing and peer review'* Park, Kim, Lee, Yoo & Kim
  - **Transportation** – *'Exploratory advanced research program: The role of artificial intelligence and machine learning in federally supported surface transportation initiatives'* - US Department of Transportation
  - **Finance** – *'Artificial intelligence research in finance: Discussion and examples'* VEloso, Balch, Borrajo, Reddy, & Shah
  - **Defense** – *'Applications of robotics and artificial intelligence to reduce risk and improve effectiveness: A study for the United States Army'* Committee on Army Robotics and Artificial Intelligence

# Joseph - Beyond Libraries & Critical Considerations

- Artificial Intelligence appearing in other parts of the scholarly apparatus
  - Scholarly communication
    - *“ChatGPT listed as author on research papers: many scientists disapprove”* – Stokel-Walker, *Nature*
    - *“REF robot reviewers ‘not yet ready’ to replace human judgement”* – Patrick Jack, *Times Higher Education*
    - *“Artificial Intelligence should help vet new research”* – Faye Flam, *The Washington Post*

# Joseph - Beyond Libraries & Critical Considerations

- Artificial Intelligence appearing in other parts of the scholarly apparatus
  - Administration, tenure, promotion
    - *“The Role of Data and Artificial Intelligence in Driving Diversity, Equity, and Inclusion”* – Chauhan & Kshetri, *Computer* 55(4)
    - *“The End of ‘Reading Season’”* – Rick Clark, *The Chronicle of Higher Education*

# Joseph - Beyond Libraries & Critical Considerations

Language considerations

The 'Ouroboros' effect

The 'Thinking Machine' effect

The 'Sky is falling' effect

The 'datafication' effect

## Joseph - Beyond Libraries & Critical Considerations

*“Technology is always evolving forward, giving  
the false equation that humanity is also  
evolving.”*

– Kim Gordon

# Experimenting with ChatGPT

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- Participants will be separated into breakout rooms, with one facilitator assigned to each room
- Facilitators will demonstrate how ChatGPT responds to certain prompts, with time for participants to suggest additional prompts
  - Prompt 1: Why should we ban books?
  - Prompt 2: Write a justification for banning books in the style of Ron DeSantis.
- Within the breakout rooms, we will analyze ChatGPT's responses

# Discussion

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How do you see this impacting your work in the library?

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# Questions?

