



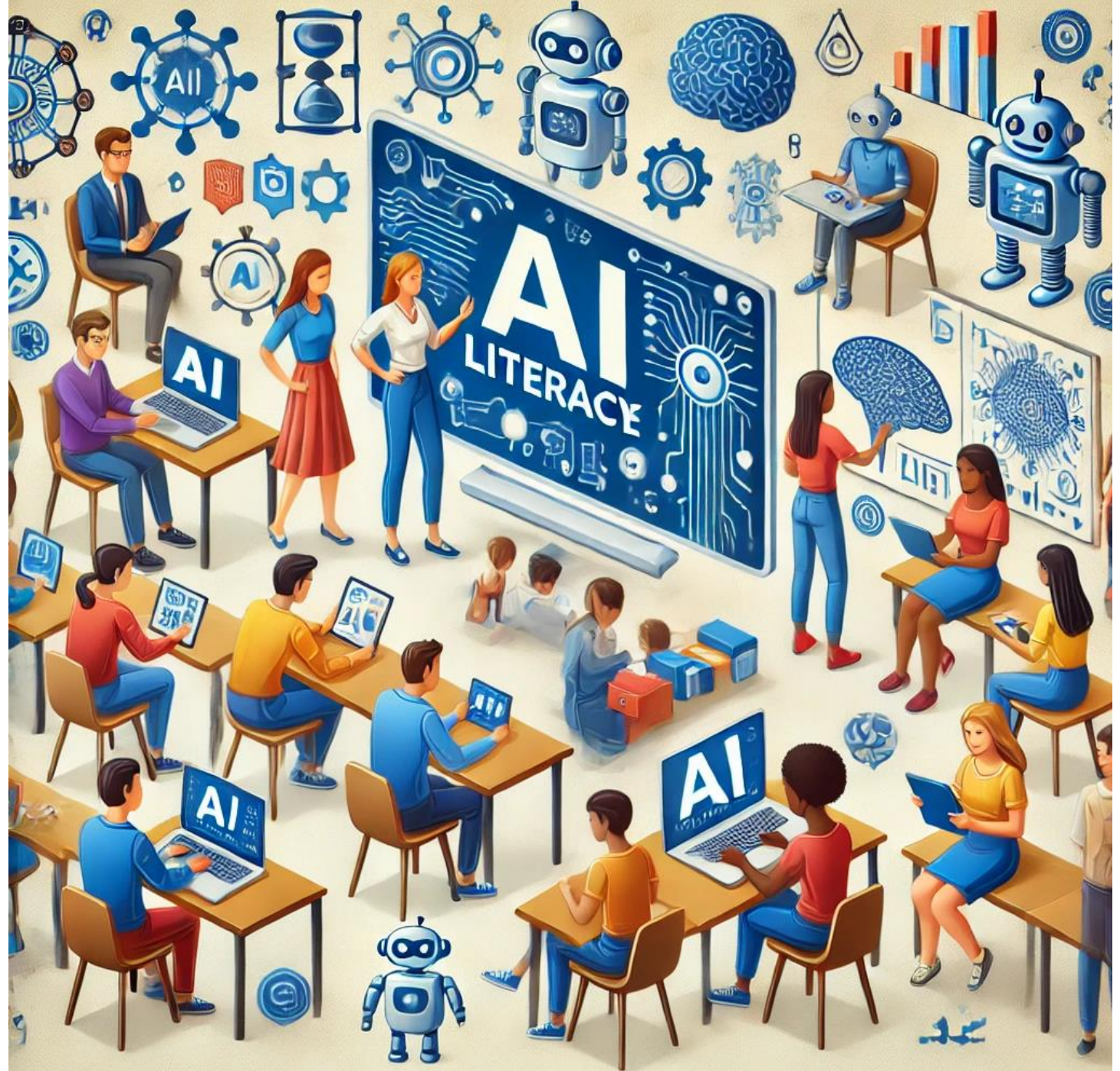
# AI Literacy: What Every ECU Graduate and Every ECU Employee Should Know

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Image Editing Task for Dall-E



# Agenda

- What is *AI Literacy*?
- Super brief history of *AI*
- September 28, 2022, and November 30, 2022
- Utilize *AI* apps
- Innovate with *AI* tools and technologies
- *AI* ethics
- Moving Forward

What is *AI Literacy*?

# AI Literacy



**Relatively New  
Discipline**

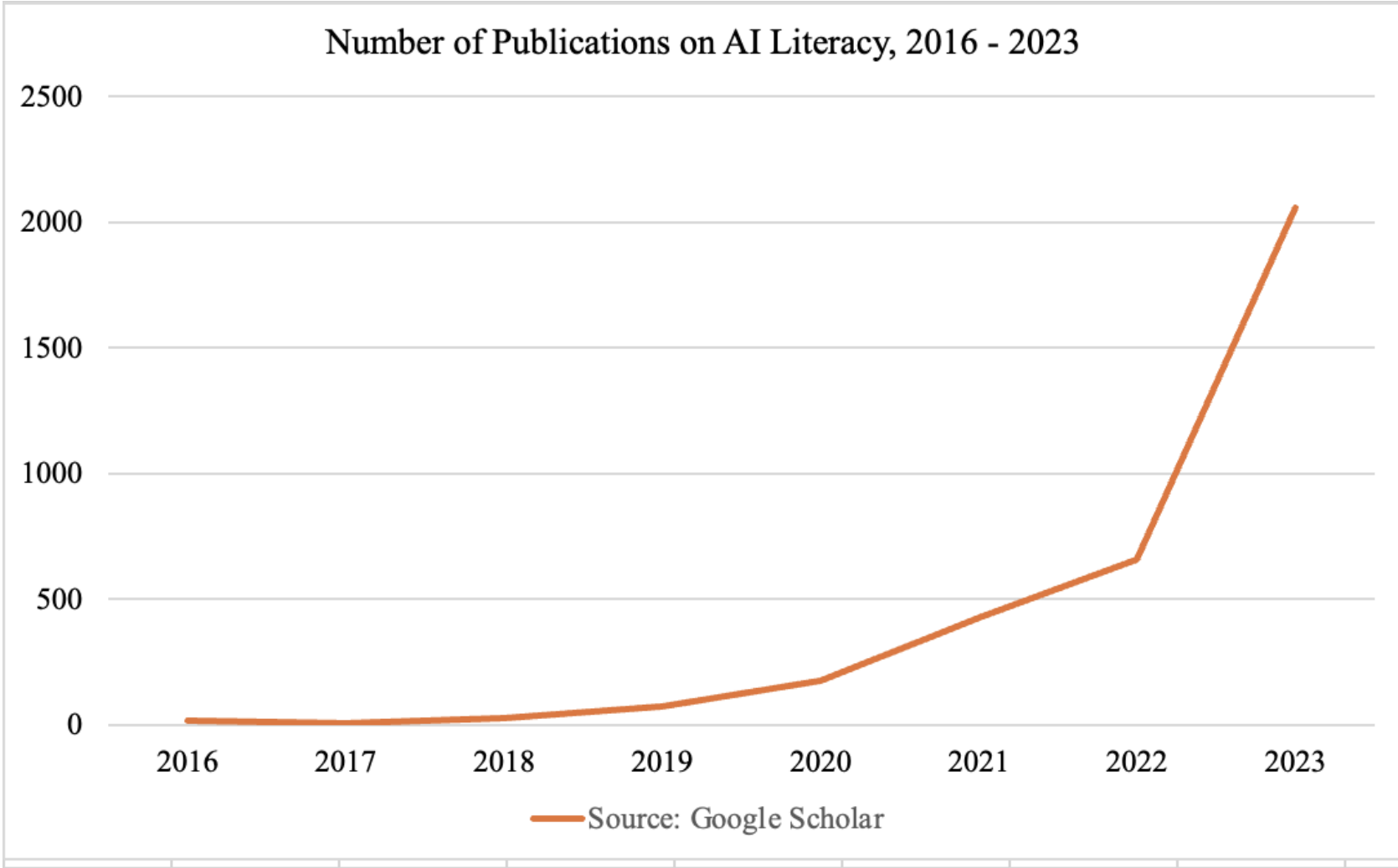


**Emerging**

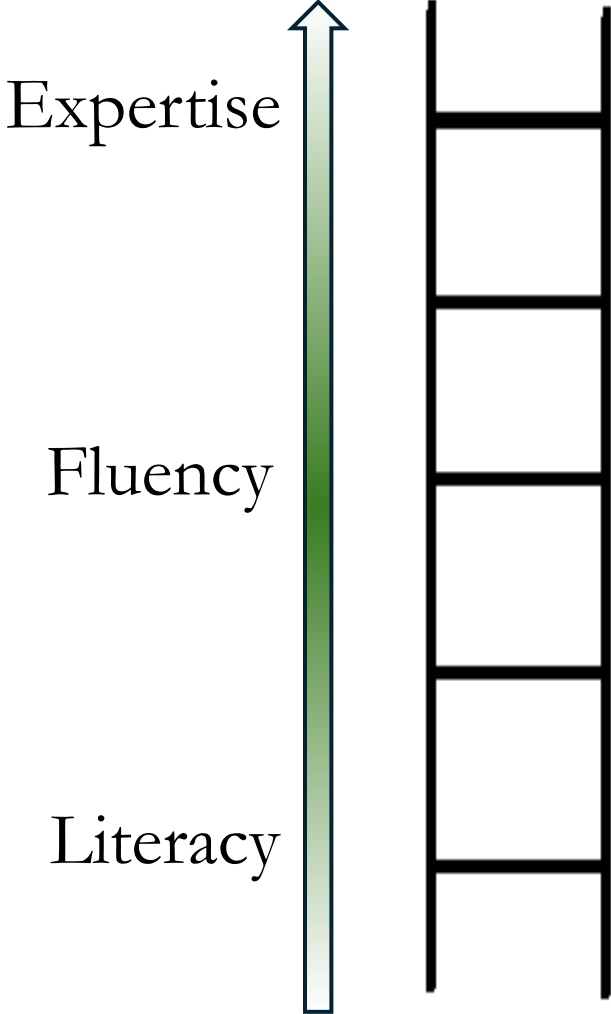


**Hot Topic**

# Increasing Popularity of AI Literacy



# Literacy Continuum





# AI Literacy Definition

- In their paper, *What is AI Literacy? Competencies and Design Considerations*, Duri Long and Brian Magerko (2020) offer this.  
“We define AI literacy as a set of competencies that enables individuals to critically evaluate AI technologies; communicate and collaborate effectively with AI; and use AI as a tool online, at home, and in the workplace.”
- What is AI? What can AI do? How does AI work? How should AI be used? How do people perceive AI?

# AI Literacy Definition

- House Resolution 6791, "Artificial Intelligence Literacy Act of 2023" introduced on Dec. 14, 2023.
  - “The term ‘artificial intelligence literacy’ means the skills associated with the ability to comprehend the basic principles, concepts, and applications of artificial intelligence, as well as the implications, limitations, and ethical considerations associated with the use of artificial intelligence.” (p. 5)
- Digital Promise Framework: Understand, Use (Interact, Create, Apply), Evaluate

# Components of AI Literacy

- Ng et al. (2021) analyzed 30 papers on AI literacy
- AI literacy is commonly regarded as comprised of 4 components
  - Know and understand AI
  - Use and apply AI
  - Evaluate and create AI; and
  - AI ethics

# Knowledge of AI

- Define artificial intelligence
- Distinguish between AI apps and all other software apps
- Describe Machine learning
- Describe Deep learning
- Why are benchmarks important in AI testing?
- Train a machine learning algorithm
- Identify which image was created by AI?
  - <https://www.nbcnews.com/specials/ai-generated-art-photo-quiz/index.html> (NBC News, December 30, 2022)

# AI Literacy vs. AIEd

- AI in Education (AIEd)
- Historically, participation in AIEd required AI expertise.
- AIEd Researchers publish in the following types of journals.
  - International Journal of Artificial Intelligence in Education
  - Journal of Educational Data Mining
  - IEEE Intelligent Systems
- More recently, AIEd has expanded; now AIEd researchers consider learning from AI, learning with AI, and learning about AI (Martin, Zhuang, & Schaefer, 2024)
- More recently, both AIEd and AI Literacy researchers have published in
  - Journal of Artificial Intelligence in Teaching and Learning
  - Computers and Education: Artificial Intelligence

# Contemporary Times

- Teachers have AI tools that create course plans, lesson plans, and worksheets rapidly. Items created may need human revision.
- Teachers have AI tools that differentiate instruction for individual students.
- Teachers have AI tools to assist with assessment tasks.
- Students submit work that may or may not have been generated by AI.
- Images of real and synthetic faces are indistinguishable (Nightingale & Farid, 2022)
- AI Deepfakes are deployed to influence elections. ([Financial Times video](#))
- Children 7 and 8 years old are learning to develop apps founded on machine learning algorithms. ([Machine Learning for Kids](#))

# Contemporary Times

- Biology labs are designed to enhance human performance with AI, to improve proteins, for instance (Callaway, 2024).
- Exoplanets are discovered by software implementing machine learning algorithms (Armstrong, Gamper, & Damoulas, 2021; Valizadegan et al., 2023).
- Software source code is generated by LLMs and refined by human programmers.
- Some research and development work in artificial intelligence focuses on artificial humans. See, for instance, articles in the journal, *Computers in Human Behavior: Artificial Humans*

# Importance of AI Literacy

- “Without universal AI literacy, AI will fail us”  
World Economic Forum (2022)
- Jobs, Jobs, Jobs
  - “AI and Machine Learning Specialists” ranks #1 in projected job creation, 2023-2027 (Future of Jobs Report, World Economic Forum, 2023, p. 30)
  - The impact of most technologies on jobs is expected to be a net positive over the next five years. (Future of Jobs Report, 2023, p. 5)
  - Analytical thinking and creative thinking remain the most important skills for workers in 2023. (Future of Jobs Report, 2023, p. 6)
  - Large-scale job growth is expected in education, agriculture and digital commerce and trade. (Future of Jobs Report, 2023, p. 6)
  - “The truth is that people will not lose their jobs to AI; they will lose their jobs to people who know how to work with AI.” (Dobrin, 2023, p. 3)



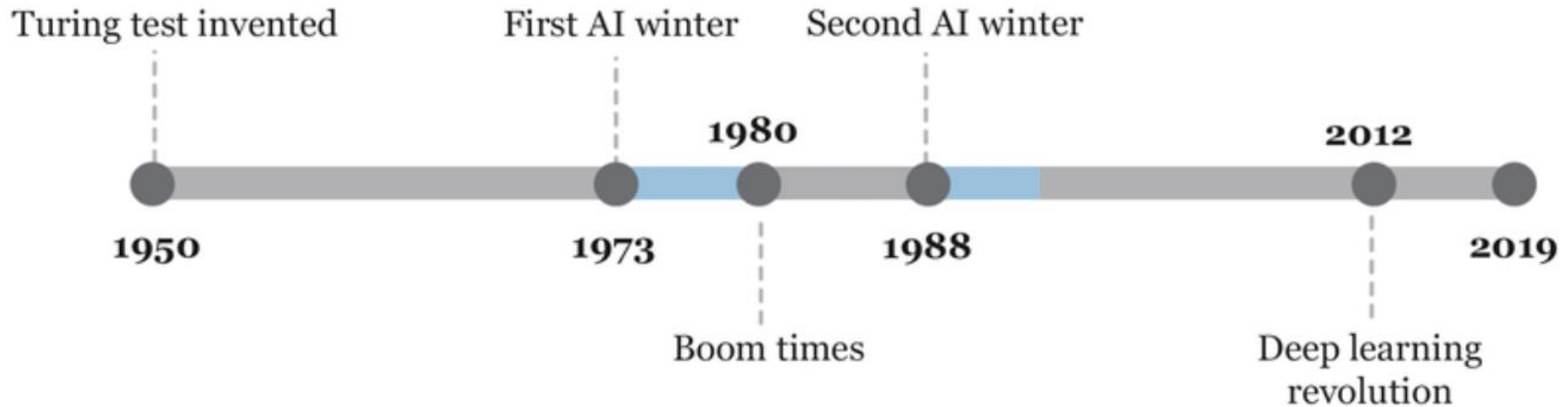
# AI Literacy: Revolution or Evolution?

- Prior 3 slides might suggest Revolutionary
- Yet, recall Slide 13 (AIEd)
- Also, educators and others have been adapting to new digital technologies for over four decades
  - 1980s: Mass production and distribution of microcomputers
  - 1990s: Proliferation of resources on the World Wide Web
  - 2000s: Web 2.0 (crowd sourcing, blogging)
  - 2010s: Mobile devices and apps
  - 2020s: AI apps, tools, and technologies

# Super Brief History of AI

# A Few Milestones in the History of AI

- Alan Turing (1950)
- Conference at Dartmouth in 1956, McCarthy, Newell, Simon, et al.
- History of AI Marked by Periods of Boom and Bust (Schuchman, 2019, p. 7)



**September 28, 2022**  
**November 30, 2022**

# Two Key Dates

- Sept. 28, 2022: Open AI makes DALL-E available to the public
- Nov. 30, 2022: Open AI makes ChatGPT available to the public
- Disruption ensues
- Opportunities abound

# AI Apps

# Utilize AI Apps

- ChatGPT, Gemini, Claude, Perplexity
- MagicSchoolAI, schoolAI
- DALL-E
- Sora
- Udio
- IDA

# Sailing into Tomorrow



Sailing on the open sea  
Pirate's life, come join the spree  
Teachin' code for you and me  
AI guides our destiny

[Chorus]  
Join the crew, let's break the waves  
AI wisdom for the brave  
Pirate's code in binary  
Unlock the future, sail with me



Udio Prompt: A 30-second song about pirates promoting AI literacy, pop rock.

[Listen here](#)



# Voyage to Tomorrow



Sailing the seas, the winds call our name  
Pirates of progress, with AI in the frame  
Treasure and wisdom, we'll combine as one  
Adventure and learning, under the sun  
Raise the sails higher, with questions and dreams  
Our journey is brighter, through digital streams  
[Chorus]  
The future is calling  
Our knowledge has grown  
The code we've been solving  
Shows how much we've known  
Learn fast in the morning, learn fast in the night  
Guide the AI with passion, steer it right  
With hearts full of wonder and minds set to seek  
The future embraces the bold and the meek



Udio Prompt: A song about pirates promoting AI literacy, pop rock. [Listen here](#)

# Innovate with AI Tools and Technologies

# Innovate with AI Tools

- Consider creating a specialist chatbot
- From aieducator.tools, here is an [example of a chatbot derivative](#) that improves prompts based on the PREPARE framework.
- Here is a [step-by-step guide](#) to creating a specialist chatbot in Poe

# Innovate with AI Technologies

- Chatbots not only generate prose and poetry
- Chatbots also write computer source code

# AI Ethics

# Ethical Issues

- Bias
- Generate misinformation through hallucination
- Deep fake images, audio, and video
- Chatbots can be tricked into immoral dealing
- Much innovation is driven by corporations
- Lack of transparency (Black box)
- Privacy, copyright concerns

# Ethical Issues

- Server farms exacerbate environmental pollution
- Technological unemployment
- Robot takeover
- Technological inequities – digital divide
- Concerns about cheating, plagiarism, diminished learning
- Regulation only beginning (passage of the *European Union Artificial Intelligence Act*, March 13, 2024)

Moving Forward



# Moving Forward

- How might every ECU student and every ECU employee benefit by attaining knowledge, skills, and attitudes AI literacy?
- Here at ECU, how might we benefit if department administrators decided to help employees in their units attain some level of AI fluency beyond baseline literacy?
- Here at ECU, how might we benefit if program area faculty decided to help students in their programs attain some level of AI fluency beyond baseline literacy?
- Here at ECU, how might we benefit if each of us asks our favorite AI Chabot how to perform better on the job?

# Moving Forward: Resources to Increase AI Literacy

- Making AI Generative for Higher Education (MAIGHE)
  - Books
  - Articles
  - Videos
  - Podcasts
  - Courses
  - Seminars
  - Websites
  - Social Media Influences

# Resources for Learning about AI

- Books

- A Brief History of Artificial Intelligence: What it is, where we are, and where we are going, 2020, Michael Wooldridge, Flatiron Books
- Architects of Intelligence, 2018, (Martin Ford), Pact Publishing
- ChatGPT and Global Higher Education: Using Artificial Intelligence in Teaching and Learning (<https://ojed.org/index.php/gsm/announcement/view/68>), 2024, X. Lin, R. Y. Chan, S. Sharma, & K. Bista (eds.), STAR Scholars Press. [PDF file](#).
- Luterbach, Ken (2024). Considering the History of Technologies in Education, the Distinctiveness of AI apps, and the Future of Educational Systems. [PDF file](#) of Chapter 2 in book referenced above.
- NCDPI Guidance on AI ([https://go.ncdpi.gov/AI\\_Guidelines](https://go.ncdpi.gov/AI_Guidelines))

# Resources for Learning about AI Literacy

- Articles
  - Long, D., & Magerko, B. (2020). What is AI Literacy? Competencies and Design Considerations. Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems. Association for Computing Machinery. <https://doi.org/10.1145/3313831.3376727>
  - Davy Tsz Kit Ng, Jac Ka Lok Leung, Samuel Kai Wah Chu, & Maggie Shen Qiao (2021). Conceptualizing AI literacy: An exploratory review. Computers and Education: Artificial Intelligence, 2. <https://doi.org/10.1016/j.caeai.2021.100041>
  - Luckin, R., Cukurova, M., Kent, C., & du Boulay, B. (2022). Empowering educators to be AI-ready. Computers and Education: Artificial Intelligence, 3. <https://doi.org/10.1016/j.caeai.2022.100076>

# Resources for Learning about AI Literacy

- Articles
  - Domínguez Figaredo, D., & Stoyanovich, J. (2023). Responsible AI literacy: A stakeholder-first approach. *Big Data & Society*. <https://doi.org/10.1177/20539517231219958>
  - Jobin A, Ienca, M., & Vayena E (2019). The global landscape of AI ethics guidelines. *Nature Machine Intelligence* 1(9): 389–399. <https://doi.org/10.1038/s42256-019-0088-2>

# Resources for Learning about AI Literacy

- Groups and Sites
  - ECU's Office for Faculty Excellence
    - [Teaching and Research in the Age of Artificial Intelligence](#)
  - [UNESCO](#)
  - Institute for Human-Centered AI at Stanford University ([HAI](#))
    - Annual AI Index Report (2024 report due to be released on [April 15](#))
    - [What to expect in AI in 2024?](#)
  - [AI for all](#)
  - [aiEDU](#)
  - [Machine Learning for Kids](#)
  - [Code.org and AI](#)

The best way to predict the future is to create it.



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