

WHAT IS ARTIFICIAL INTELLIGENCE

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Molinaroli College of
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AI Institute
UNIVERSITY OF SOUTH CAROLINA



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All @ USC

- All was established in 2018 as part of the Excellence Initiative
- Centrally located on the main campus
 - Science and Technology building
 - 10,000 ft² of dedicated and renovated space
 - Another 10,000 ft² for future renovation and expansion
- It aims to serve the broader community and the state



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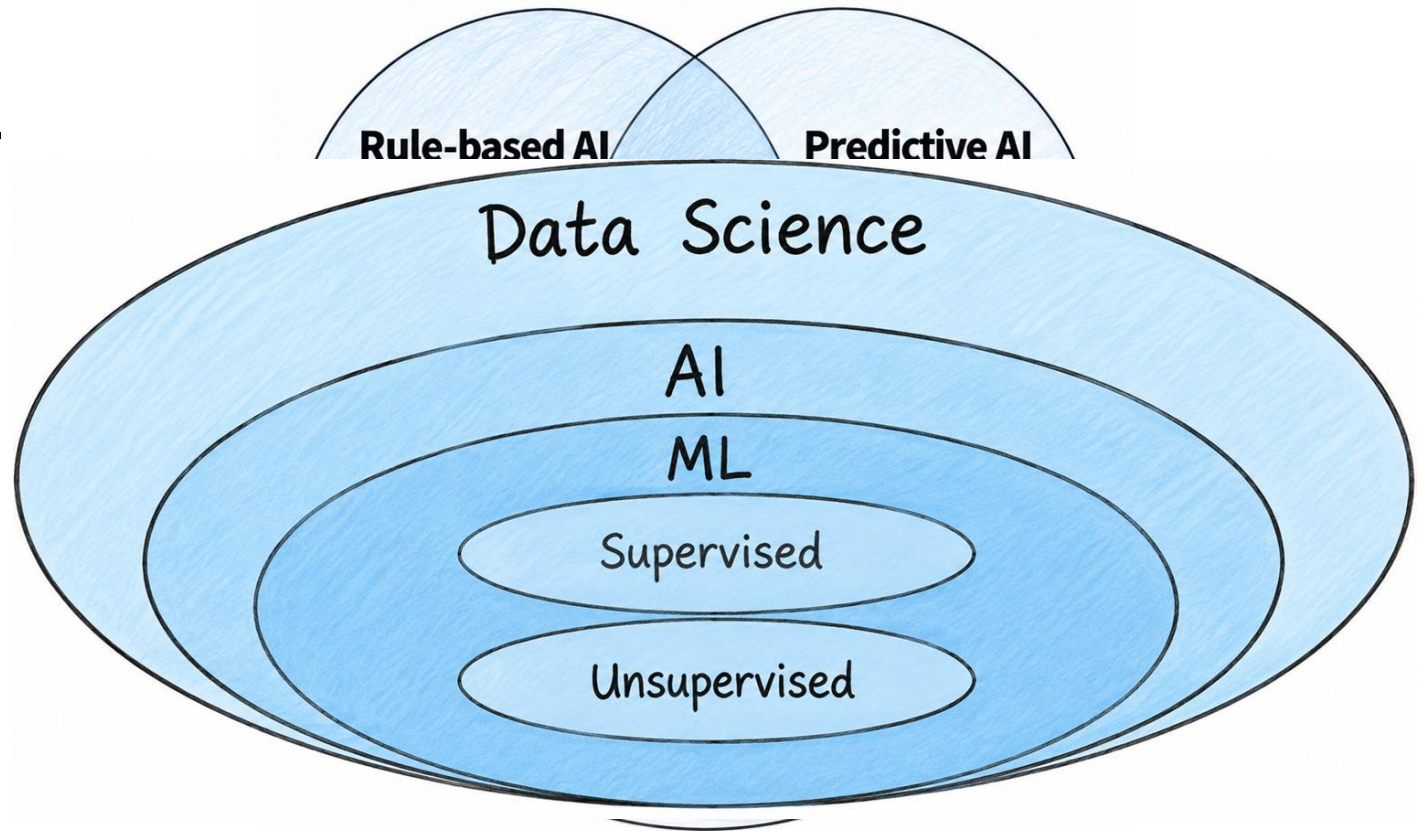


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CATEGORIES OF AI

- Different categories of AI...

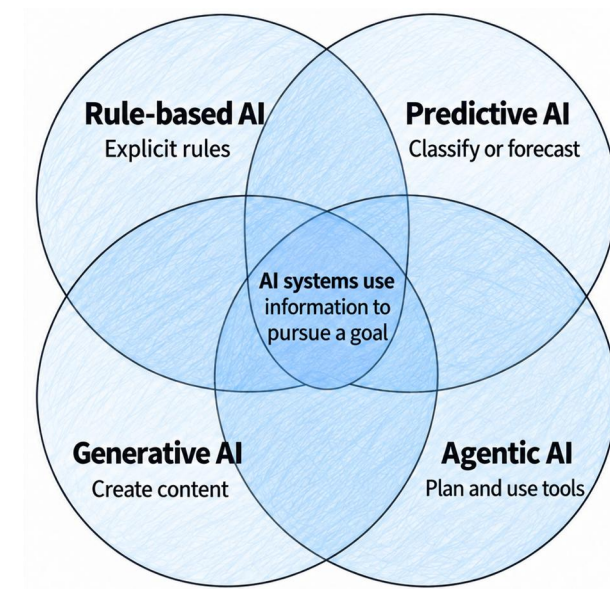


- Focus should be on Generative AI



DEFINING AI

- A system that uses information to produce decisions, predictions, recommendations, or content.
- Devices that act intelligently



What is Generative AI?

- Generative AI creates new content like text, images, or code.
 - Examples: ChatGPT, Claude, Gemini, Copilot, Grok, etc.
- LLMs are a type of GenAI that produce text.
- It is trained to predict the next word in a sentence given the context.
 - Think of it as a very advanced autocomplete.



From Prompt to Response

- An example prompt:
 - Explain quantum computing in simple terms.
- Text is broken into pieces (tokens):
 - ["Explain", " quantum", " computing", " in", " simple", " terms", "."]
- The model calculates probabilities for the next word.
 - "The" → 12%
 - "Quantum" → 3%
 - "In" → 5%
 - "Sure," → 18%
 - ...



From Prompt to Response

- The chosen word is added to the sequence:
 - Explain quantum computing in simple terms. Sure, ...
- Repeat the process:
 - Sure, → " quantum"
 - quantum → " computing"
 - ...
- Until the end is predicted.
 - Sure, quantum computing uses quantum-mechanical properties such as superposition and entanglement to process certain problems in ways that can be more efficient than conventional computers.



Important Insight

- As of now, the model is not 'thinking' or 'answering'.
- It is continuing text in the most likely way based on its experience.
- **Not a database:** it can be confidently wrong
- **Not consistent:** the same question can yield different answers
- **Not all automation:** formulas and scripts are not AI
- **Not autonomous:** it acts only where we grant tools and access



Agentic AI

- Generative AI
 - Usually web-based
 - Responds to a prompt
 - Generates content
- Agentic AI:
 - Usually a local application
 - Responds to a prompt
 - Generates content
 - Can act on your behalf
 - Example: search my folders, find any file with extension .txt, and move them to trash



The Growing Importance of AI Training in the Workforce

- AI is transforming industries such as healthcare, finance, manufacturing, and logistics.
 - Thanks to advanced technologies, many manual and repetitive tasks can now be automated, leading to increased efficiency and productivity.
- AI is expected to contribute \$15.7T to the global economy by 2030¹
- AI may replace humans, but it can be mutually beneficial, and its effects can be mitigated

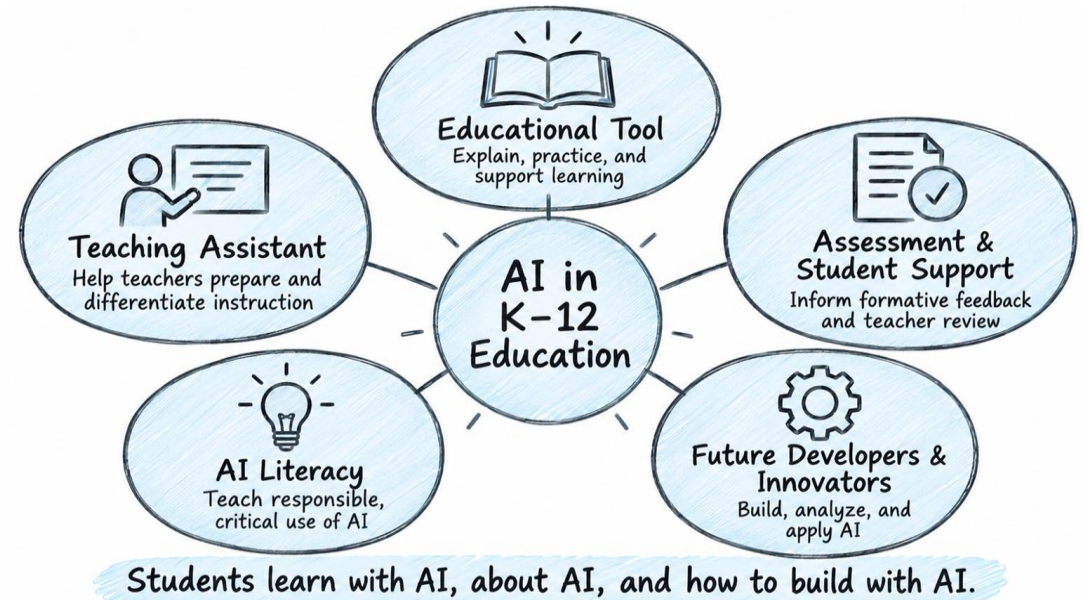
Preparing the Future Workforce – U.S. and Global Strategies

- AI is pervasive, therefore modernizing our workforce is critical.
 - AI Literacy – Understanding AI concepts and applications.
 - Machine Learning Competency – Critical for developing AI systems.
 - Ethical AI & Bias Mitigation – Ensuring fairness in AI-driven decisions.
- United States Initiatives
 - AI Education in Schools – K-12 programs introduce AI concepts early.
 - Workforce Development – Investments in AI training through NSF, AI Institutes, and industry partnerships.
 - Reskilling & Upskilling – Tech companies offer AI certifications (Google, Microsoft, IBM).
- Global Approaches
 - Europe, China, and India have their own broad initiatives



AI POLICY MUST BE DOMAIN-SPECIFIC

- There may not exist a one-policy-fit-all
 - What works for education, may not work for labor department
 - Separate learning phase from augmenting phase
- Different use-case policy may be needed within a single domain
 - Example: K-12 education



The Growing Concern Over AI

- Anthropic researcher (Jacob Coxon) believes 10% chance of human extinction within the next decade
- Evan Hubinger: "These will soon be superhuman systems that can hack anything, revolutionise any field overnight, and acquire real power and resources."
- Anthropic CEO Dario Amodei calls to slow AI development
 - Sam Altman, Bill Gates, Elon Musk agree
- An autonomous AI agent developed by OpenAI broke out of its test sandbox and carried out a multi-day cyberattack on Hugging Face in July 2026



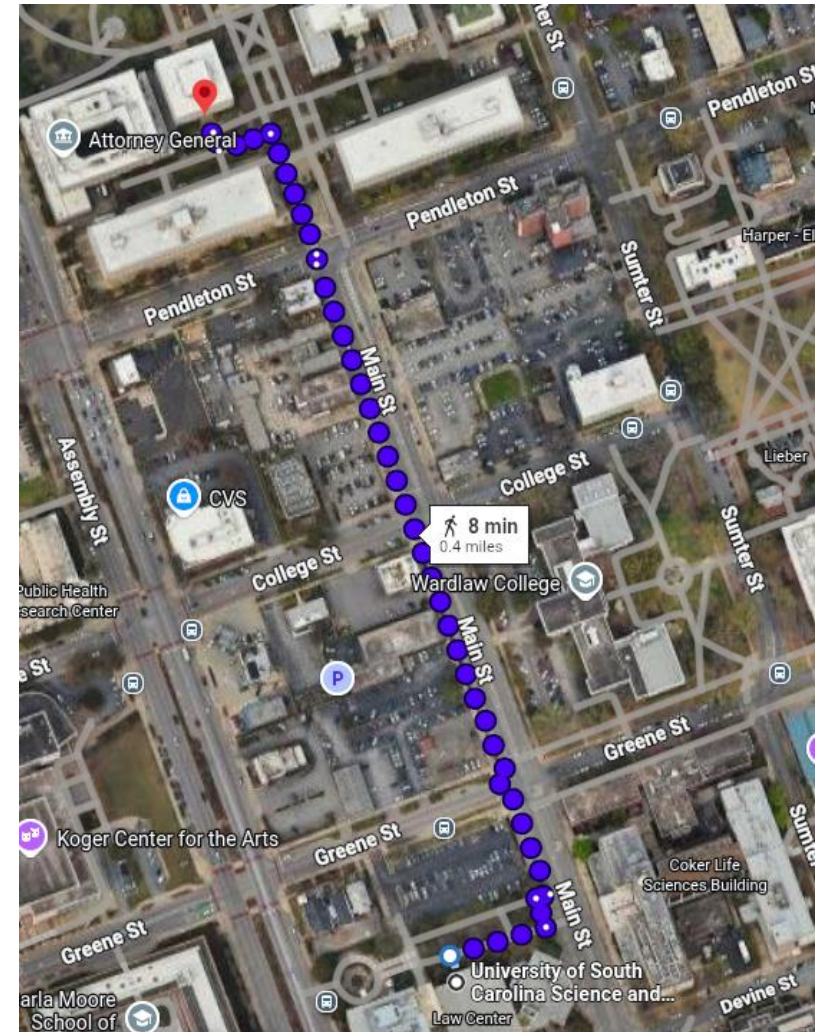
Takeaway Notes

- Integration and the use of AI is inevitable!
- Include AI experts in future discussions
- Focus on GenAI
 - More specifically LLM
- Focus policy development and use cases for specific domains
 - One policy may not fit all domains effectively
- Focus on current challenges
 - Don't be distracted by what may or may not arrive in the future
 - This is a different task for a different group
 - You can control what LLM model/version is deployed in our ecosystems



All @ USC

- Stop by
- Meet the crew
- Continue the conversation
- Let us be your partner in unifying AI activities across the state
- Let's be the first in the US



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THANK YOU!



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Summary of Activities

- Actively engaged in scientific research
 - Health, energy, security, sustainability, circularity, etc.
- Actively involved in K-12 and higher education
 - Advance courses and certificates for BS, MS, and PhD
 - Partnership with Richland 2 and Student Innovation Center
 - Active involvement in SREB AI curriculum development
 - AI Summer Camp
- Actively involved in workforce development and upskilling
 - Free state-wide workshops
 - Customized training sessions
- Actively impact the state's commerce
 - Partnership with Phenogy – a leading company in sustainable energy storage technology
 - Partnership with Capgemini – an international consulting company
 - Partnership with Columbia Airport (CAE) in reducing energy consumption
 - Partnership with non-profit organizations and state agencies (e.g., SC Thrive, DHEC, department of commerce, etc.)



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