Friend or Foe?

Unpacking the Impact of AI on the Future of Teaching and Learning

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Machine Learning – Education – AI

Understanding Education 4.0: The Machine Learning-Driven Future Of Learning
Forbes, March 31, 2022

Should schools ban or integrate generative AI in the classroom?
Brookings Institution, August 7, 2023

New York lawyers sanctioned for using fake ChatGPT cases in legal brief
Reuters, June 26, 2023

Combating Academic Dishonesty, Part 6: ChatGPT, AI, and Academic Integrity
University of Chicago, January 23, 2023

Artificial Intelligence in K-12 Education: Unintended Consequences Lurk, Report Warns
Education Week, May 28, 2020

AI Will Transform Teaching and Learning. Let's Get it Right
Stanford University, March 9, 2023

Machine Learning in Education: Improving student outcomes and accelerating research
Amazon Web Services

2024 CAE Community Symposium

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Machine Learning/AI in the Classroom

- Who among us has incorporated/leveraged AI in the classroom?
  - Predictive measures?
  - Learning reinforcement?
  - Academic Honesty Tools?

- Who among us has avoided AI in the classroom?
  - Unsure of AI's place in education?
  - Ethical concerns?
  - Afraid of opening Pandora's Box?
    - Because of AI, must students will not need to know how to: add, write, spell, think. . . It will do this for them!

Machine Learning/AI in the Classroom

- Does Ai have a place in education (and/or the classroom)?
    - Content generation (based upon program goals and learning outcomes)?
    - Adaptive/personalized learning?
    - Adaptive assessment?
    - Assessment support (e.g., Plagiarism detection, reduced-bias assessment)?
    - Predictive measures (student success)?

- So-called "Smart Learning" promises to make teaching and learning:
    - More flexible
    - More efficient
    - Highly personalized
    - More successful

Background – Terminology

- Artificial Intelligence (AI)

- Machine Learning (ML)

- Generative AI

- Large Language Models (LLM)

- Neural Network

- Decision Tree

- Support Vector Machine

- Feature

AI as Tool

- AI – just one of many technologies that we humans have developed
- Do we see this technology as a tool, or as an end in itself?
  - We can leverage AI to automate teaching (good and bad teaching)
  - Can we leverage AI to produce new manners of teaching?
  - Instead of fear-mongering (my students no longer need to think), can we see AI as a transformative tool, enabling deeper learning?
- Teacher professional development/reinforcement
  - Teacher training (with AI students?!)
  - Assist teacher with developing more personalized feedback for student assignments
  - Predict where students may struggle/fail in certain course modules
  - Potentially reduce/remove bias from assignment assessment process

Caveat Emptor

- Your model is only as good as your data

- Our data can still contain biases

- Fast is not always good

- Is education a social activity?
  - Can AI replace/replicate that activity?
  - Do we want AI to replace/replicate that activity?
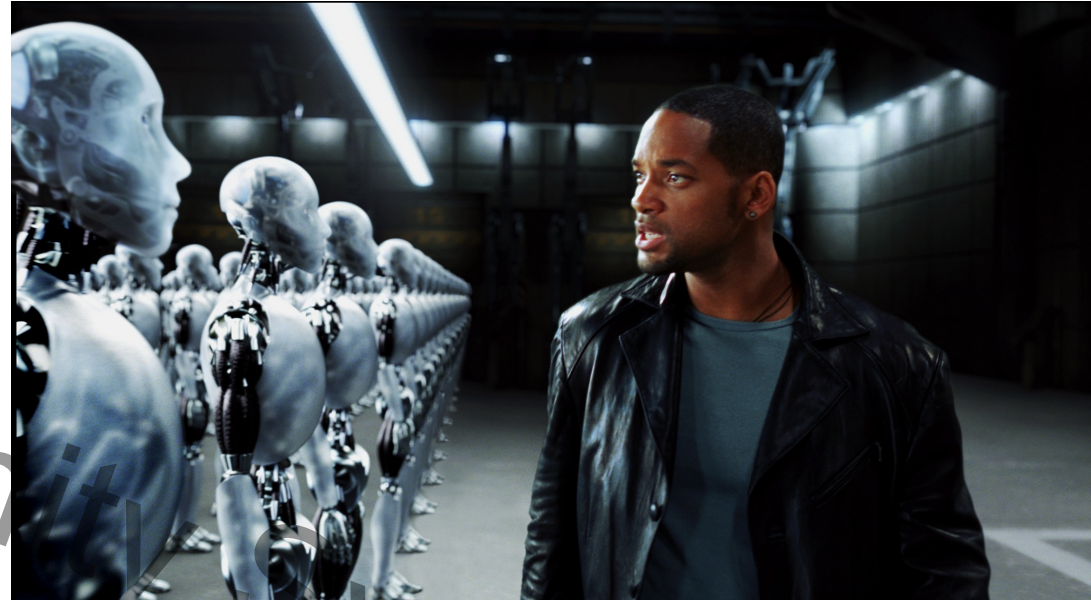
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Ethical Issues

- Where does the learning model come from?
  - Concerns of authorship & IP rights are playing out in real time
  - Privacy concerns of the student (is the model learning from the student as the AI "teaches")

- Biased training data produce biased results

- What ethical guardrails do we need in place?
  - UNESCO Global Forum on the Ethics of AI attempting to "get AI governance right"

Where do we go from here?

- Engage! Highly unlikely that AI in the classroom is "just a passing phase"

- Research, innovate, & evaluate novel uses of AI to support classroom learning

- Participate in robust discussions on acceptable use/applications of AI in the classroom

Summary

- Generative AI has currently captured the public's attention/interest
- Generative & Predictive AI can potentially lead to new educational methods
  - Playing direct roles in teaching/learning and support roles for the teacher and the learner
- As with any "new" technology, public concern over how to "get it right" is building
  - Valid questions exist over appropriate use of the technology as well as the data behind the technology
- Teachers & researchers must remain engaged to help guide acceptable use and steer clear of pitfalls

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