

GW FACULTY CONVERSATION, WED. 18 JANUARY, 2023

AI IS IN YOUR CLASSROOM EVEN  
IF YOU DIDN'T KNOW IT

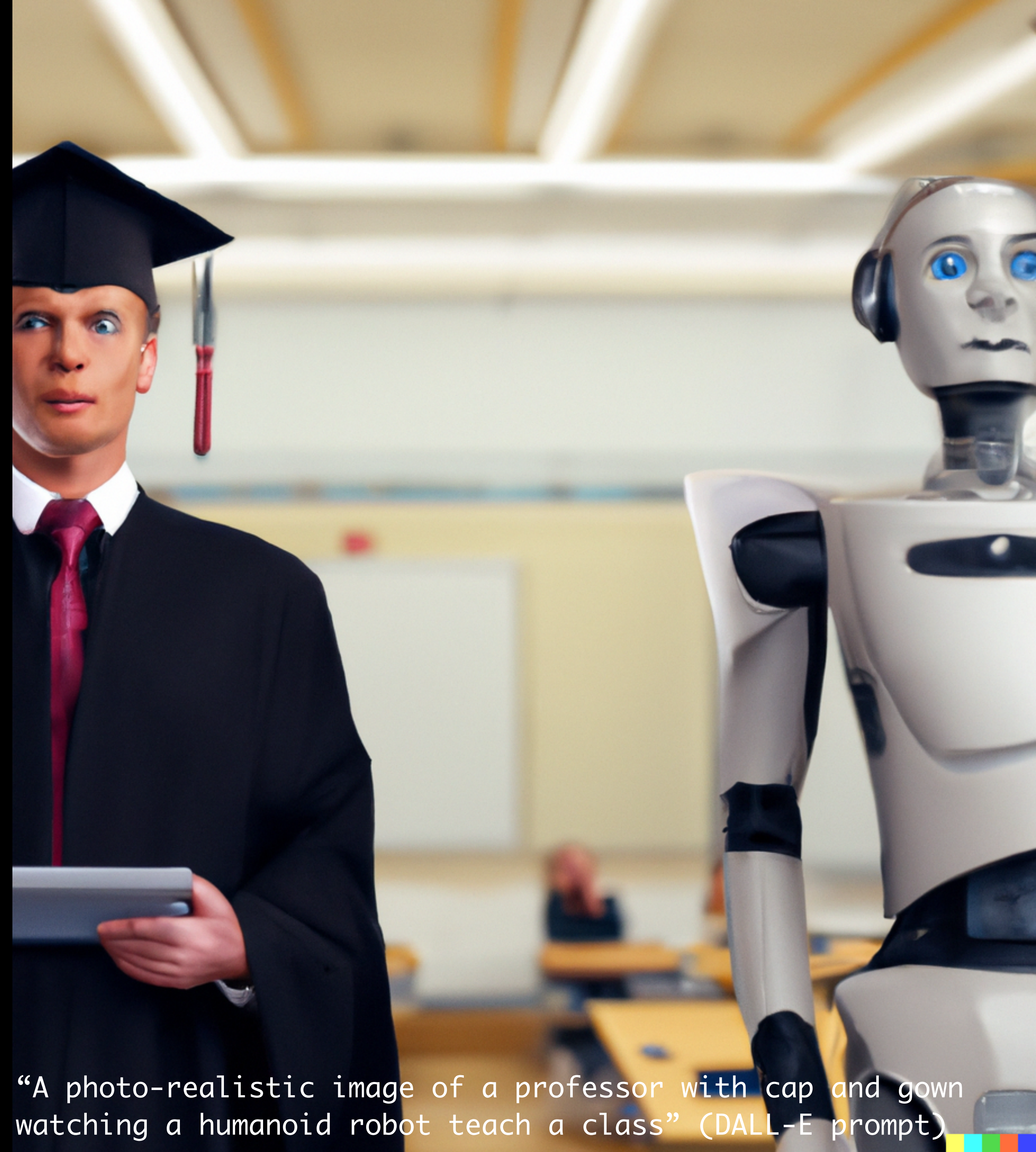
LORENA A. BARBA, MECHANICAL AND AEROSPACE ENGINEERING



# MIND THE BOT: AI

- Artificial intelligence is the science and engineering of making computers behave in ways that, until recently, **we thought required human intelligence.**

—Andrew Moore, former Dean of the School of Computer Science at Carnegie Mellon University (in Forbes, 2017)



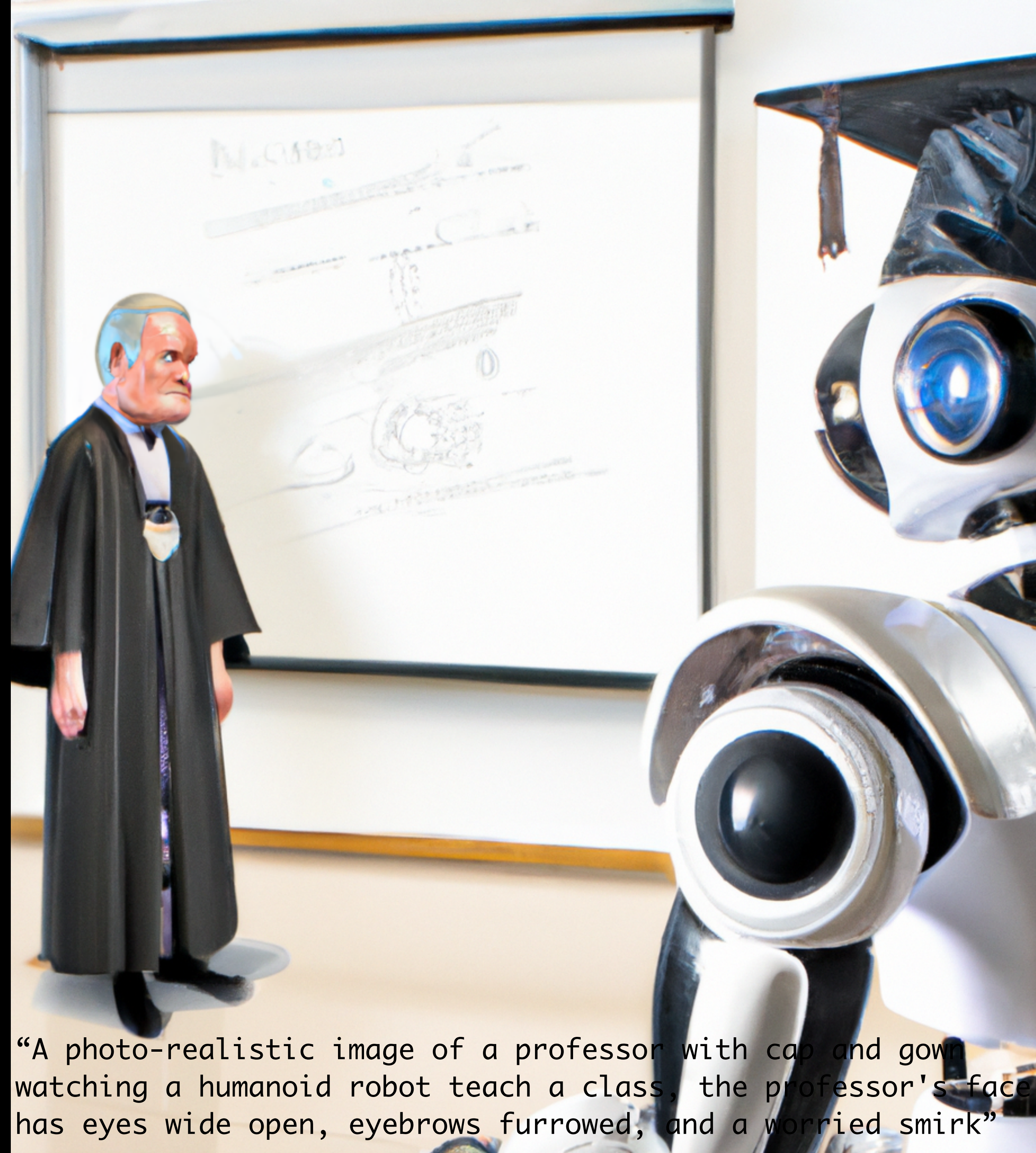
“A photo-realistic image of a professor with cap and gown watching a humanoid robot teach a class” (DALL-E prompt)



# MIND THE BOT: AI

- The key idea behind AI is that machines can be designed to mimic or reproduce certain cognitive abilities of humans—**perception, reasoning, decision-making**—without necessarily being human-like in their overall intelligence.

—text output from ChatGPT



“A photo-realistic image of a professor with cap and gown watching a humanoid robot teach a class, the professor's face has eyes wide open, eyebrows furrowed, and a worried smirk”



# MIND THE BOT: ML

- Machine Learning is "concerned with the programming of a digital computer to behave in a way which, **if done by human beings or animals**, would be described as involving the process of learning."

— Arthur L. Samuel, IBM (1959)

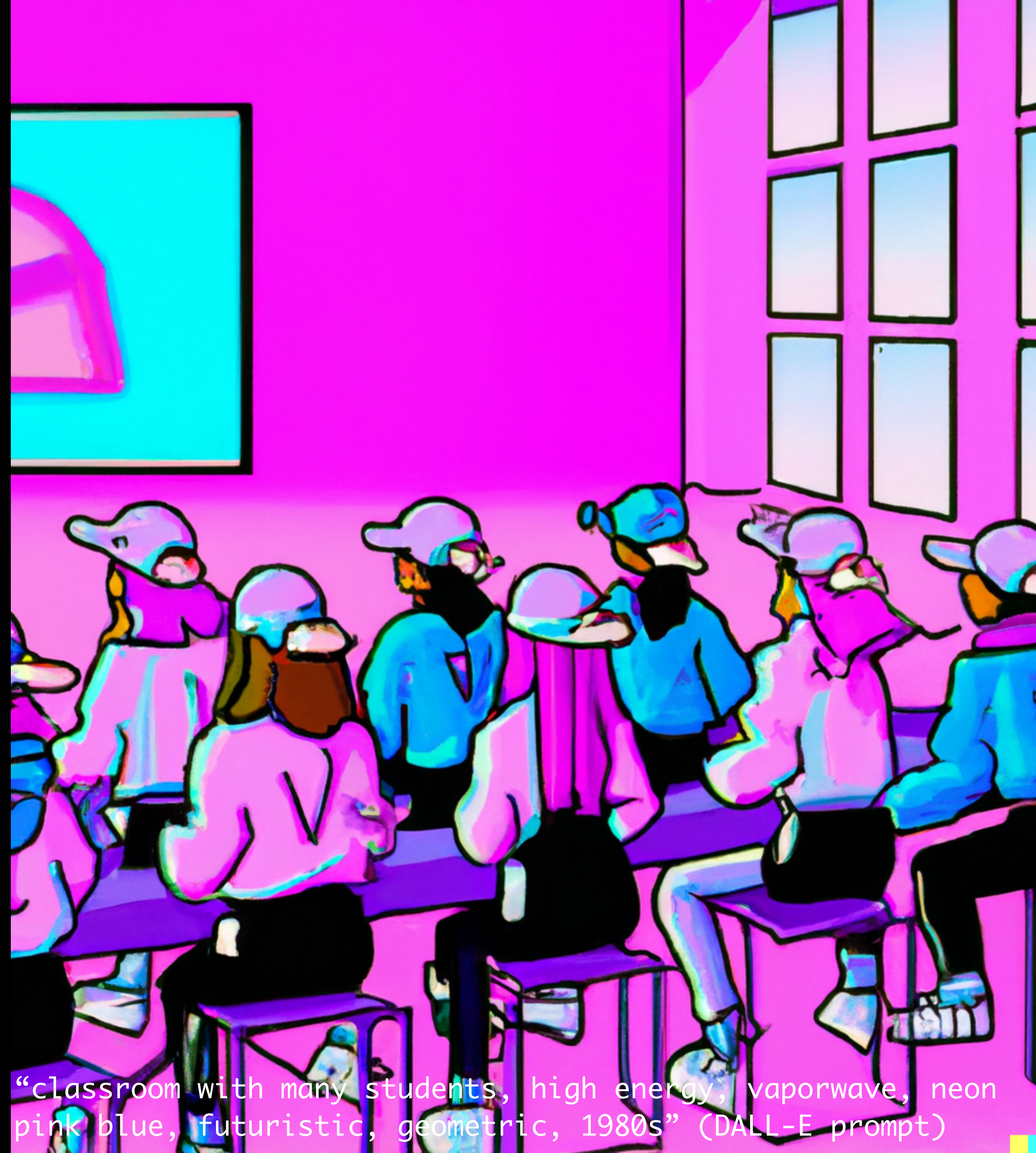


"a female professor with a diverse group of students working around a large computer screen, marvel comics style, modest dress, happy faces" (DALL-E prompt)



# MIND THE BOT: GENERATIVE AI

- branch of AI focused on creating new content, such as text, images, video, audio...
- the AI is trained on a large dataset and then uses that knowledge to generate new, unique content



“classroom with many students, high energy, vaporwave, neon pink blue, futuristic, geometric, 1980s” (DALL-E prompt)



# MIND THE BOT: LLM

- large language models are a type of neural networks trained on a large datasets of text, such as books, articles, and websites
- models are pre-trained on a massive amount of text data and can be fine-tuned on specific tasks, such as language translation, question answering, and text summarization



“library full of books, in three floors with light pouring from above” (DALL-E prompt)



# LIMITATIONS OF LLM

- Lack of context → wrong responses
- No domain knowledge
- No common sense
- Lack of creativity
- Bias
- Technical limitations



“huge supercomputer, with many led lights and cabinets and cables, in the style of digital art” (DALL-E prompt)



# OPPORTUNITIES OF CHATGPT

- Writing: use to provide feedback to students on grammar and style
- Engagement: use to create interactive experiences, simulations...
- Personalization: "follow your own adventure"
- Accessibility: language barriers, learning disabilities, attention
- Test practice: use to generate quizzes



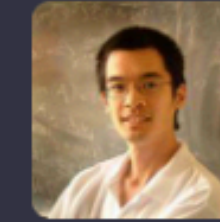
"a vibrant photograph of a large amphitheater filled with students with laptops, wide shot, soft focus" (DALL-E prompt)



ON MASTODON

TERENCE TAO

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Terence Tao

@tao@mathstodon.xyz

AI tools like #ChatGPT will soon be capable of answering a large fraction of traditional university homework type questions with reasonable accuracy. In the long term, it seems futile to fight against this; perhaps what we as lecturers need to do is to move to an "open books, open AI" mode of examination where we give the students full access to AI tools but ask them more challenging questions, both to teach the material and also to teach the students how best to use the AI tools of the future.

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Need to rethink assignments and grading for the era of GPT. Let's empower users to solve more complex assignments using the AI, not hiding from it.

Help middle schoolers do high school-level assignments, high schoolers do undergrads', and undergrads do PhD-level.

1:09 PM · Dec 21, 2022 · **39** Views