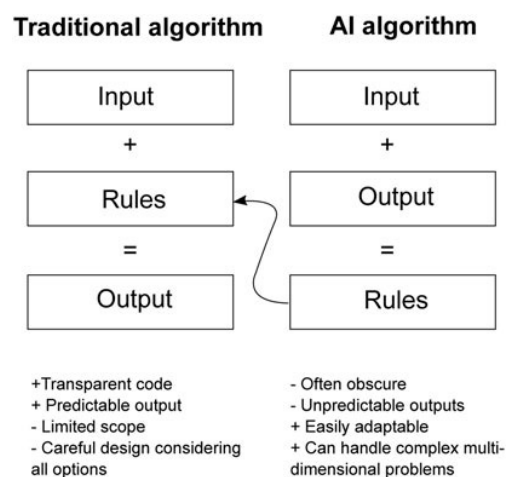


# AI in structural design

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## Traditional vs AI approach



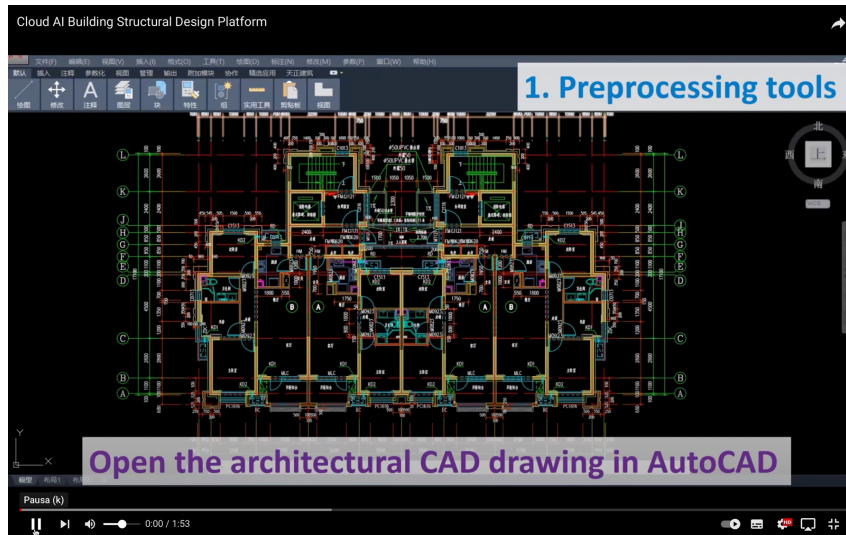
## Traditional vs AI approach

- In traditional approaches you have to be specific
- In AI the specifics are **learned**
  - By finding common patterns in data

## An analogy of AI

- Students doing exercises in class
- Learning general patterns and approach
- Extrapolating during exam (similar problem)

# AI as a tool

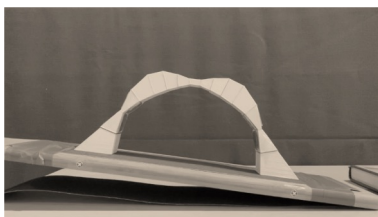


Xin-Zeng Lu, Tsinghua University - Accessible from: <https://www.youtube.com/watch?v=J6vFazCYQ-w>

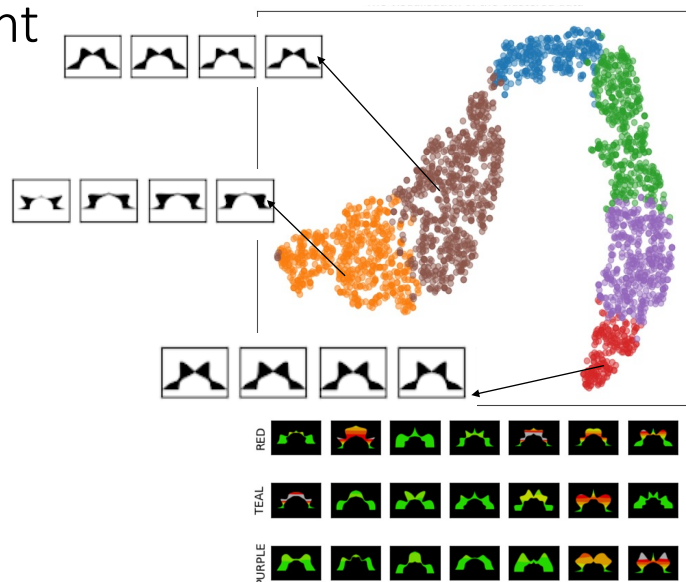
# AI as an instrument



De Kestelier (2015)



McLean, Málaga-Chuquitaype, et al. (2020)



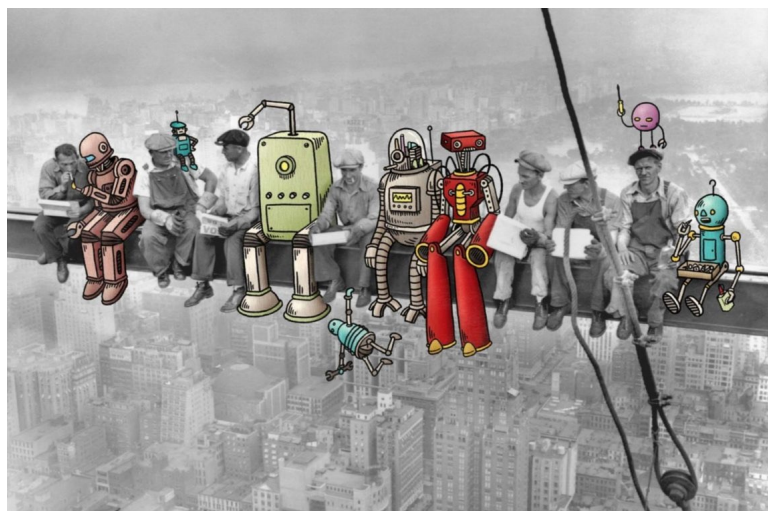
Maqdah, Málaga-Chuquitaype, et al. (2021)



## AI as a threat



## AI as a threat



## A response to the threat of the unknown

- We don't understand it
- Oftentimes they comprise many (millions) of parameters: we don't know what these parameters mean
- Most of the time, we don't know what AI learns
- They are generally not suitable to gain "understanding"

That's ok, if AI agents are black boxes: then treat them as such! .... But more theory is slowly being developed

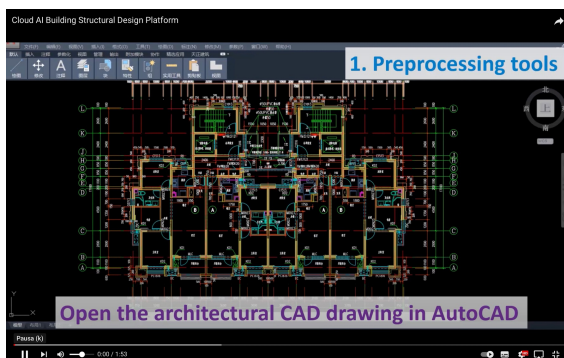
## A response to the job threat : back to the analogy

- Students doing exercises in class
- Learning general patterns and approach
- Extrapolating during exam (similar problem)

## A response to the job threat : back to the analogy

- Students doing exercises in class
- Learning general patterns and approach
- Extrapolating during exam (**same problem, just different numbers**)

## A response to the job threat : back to the analogy



### The great university con: how the British degree lost its value

Never before has Britain had so many qualified graduates. And never before have their qualifications amounted to so little.

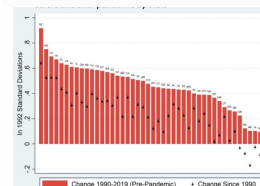
By Harry Lambert

FORBES > LEADERSHIP > EDUCATION

### Falling College Academic Standards: New Evidence

Richard Vedder Former Contributor ©

I am Distinguished Professor of Economics Emeritus at Ohio University.



## AI in Chinese

# 人工智能

“The emphasis is on utmost **practicality** and ultimate respect for **wisdom**. This explains why the term ‘AI’ in Chinese is often placed in the **practical context of applying this technology for various scientific or commercial purposes**. And, in contrast with Western narratives of malicious AI as portrayed in fiction and Hollywood films, it is also difficult to imagine that such stories of a dystopian world caused by AI would organically emerge in a Chinese context”

– The meanings of AI, S Cave et al. (2023)

## AI in structural design

When considering how AI will evolve and how it will affect our own trade, we should also consider that AI is not just a technology but an aspiration, and that this aspiration is different for different cultures and social contexts.

# AI in structural design

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