1. Dense layer/Linear layer/Fully connected layer are different names for the same layer

2. Linear activation/no activation collapses multiple layers into a single layer

3. The relationship between convolution layers and linear layers. Convolution is a special case of linear layer.



Summary of the course

- 1. Vector calculus
- 2. Forward and reverse mode differentiation (backpropagation)
- 3. Building your own pytorch library: microtorch
- 4. Linear least squares
- 5. Single layer neural network: Perceptron for classification
- 6. Multi-layer perceptron
- 7. Stochastic gradient descent
 8. A few different layers and regularization techniques

Questions for discussion

- 1. What is intelligence (human or artifical)
- 2. What is artificial intelligence?
- 3. What is a good measure of artificial intelligence?
- 4. What is happening now?
- 5. Are we going in the right direction?
- 6. What is the right direction for AI research? What are some wrong directions?
- 7. What about the job replacement?

Let's watch some videos

Geoffrey Hinton https://youtu.be/qpoRO378qRY?t=1166

60 minutes https://youtu.be/880TBXMuzmk?t=724

Octopus paper explained by Emily Bender

https://youtu.be/VaxNN3YRhBA?t=1560 https://aclanthology.org/2020.acl-main.463.pdf

Chomsky https://youtu.be/PBdZi_JtV4c?t=167 https://www.youtube.com/watch?v=miLLeyQyBtg https://www.weforum.org/agenda/2020/11/productivity-workforce-america-united-states-wage

Roodney brooks http://rodneybrooks.com/predictions-scorecard-2023-january-01/

Turing test

Winograd Schema https://en.wikipedia.org/wiki/Winograd_schema_challenge

GLUE: https://gluebenchmark.com/leaderboard SuperGLUE: https://super.gluebenchmark.com/leaderboard BigBench: https://github.com/google/BIG-bench