Old Title: Data and AI and Society

Resources and Dangers and Opportunities

Kenneth W. Regan

(Includes some material from Kenny A. Joseph and some other past CSE199 units.)

CSE199, Fall 2025

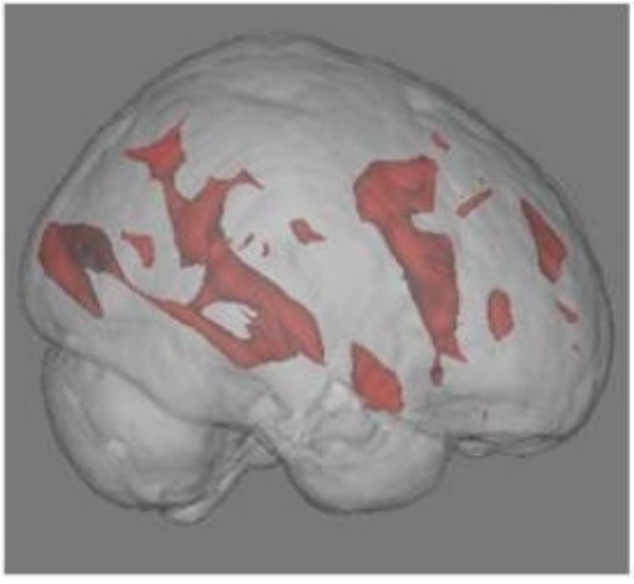
New Title: Data and AI and Society
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(Includes new material about how LLMs work)

CSE199, Fall 2026

Main Problem...



THIS IS YOUR BRAIN



THIS IS YOUR BRAIN ON THE INTERNET

Any Questions?

(Brain scan source, 1987 PSA source)

...And Problems

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- Now: Elon Musk's **Neuralink** brain implant as used to play chess.

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- **Actual reality**: the July 19, 2024 CrowdStrike Crash.



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- A spring tide of AI is coming, able to do **zero-day exploits**.

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Closest occurrence: 2026 OpenAI–HuggingFace Attack.

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The **Church-Turing Thesis** is primarily stated in terms of the class of *computable functions*, but here is Turing's angle:

> **Anything that human beings can consistently deduce or classify can also be achieved by computers acting alone.**

The **Turing Test** involves computers trying to be indistinguishable from humans in ordinary life communications and transactions.

Turing All the Possibilities

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Also defies the logical **contrapositive** of Turing's Principle:

> If it is really hard for computers then it should be hard for humans.

What we fear when worrying that AI will take away our jobs is:

> Stuff that is hard for humans but easy for computers.

The logical **converse** of Turing's Principle acts as a brake, however:

> If X is hard for humans—insofar as we can't consistently agree on answers—then X is hard for computers too.

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- Using multiple **layers** of neural nets gives **deep learning**.

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- This *may* foster adapting my chess model for a "simple frequentist" kind of cheating detection.

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