A Primer on AI Technology

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This Week:
- A short history of AI
  - What is it? When did it begin? Who invented the principal technologies?
- How do language models work?
- Guest: Prof. Meredith Broussard will discuss AI in the newsroom
A Short History of AI

- Mathematician Claude Shannon, involved with breaking Axis codes, proposed the language model in 1951.
- Language models tell you what words are likely to follow other words.

Source: Konrad Jacobs, Erlangen
Neural Networks

- The 1950s also saw the invention of the artificial neuron.
- Neural networks enabled large language models.

Pictured: a neural network.
Multimodal Models

- Diffusion models: generative AI models designed to produce images
- Multimodal models are combinations of language models and diffusion models
  - E.g.: DALL-E, Stable Diffusion

Pictured: DALL-E’s interface
On Language Models

- For some sequence of words, give the probability of that sequence appearing in the wild
- Language models like ChatGPT are always predicting the next word

Source: Vaswani et al., 2017
Hallucinations

- Larger LMs make better predictions through logic and knowledge
- **Hallucinations** are when a language model writes incorrect information
- Some now call them “confabulations” because the model is not necessarily “hallucinating”