The History of Computing

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Week 5a seminar. The second half of the same session is 2025-08-25-prompt-engineering[1]. See comp1100[2] for course logistics.

Outline

1. In what year was the first programmable computer built?
2. The eras of computing and AI — the golden age, two winters, the revival
3. Another AI winter?
4. History and representation

The history

See history-of-computing-and-ai[3] for the full reference: the six defensible answers to when the first programmable computer was built (87 BCE through 1951), the era-by-era timeline, the Turing Test, Dartmouth 1956, both AI winters and what went wrong in each, the revival, and six people the field's history remembers.

[1] courses/comp1100/2025-08-25-prompt-engineering.pdf
[2] courses/comp1100/comp1100.pdf
[3] courses/comp1100/history-of-computing-and-ai.pdf

Why this is in an innovation course

This is more than history. The argument is the pattern:

- **1956:** "Machines will be capable, within twenty years, of doing any work a man can do." — Herbert Simon
- **1958:** the Perceptron is "the embryo of an electronic computer that will be able to walk, talk, see, write, reproduce itself and be conscious of its existence." — *New York Times*
- **1970:** "In from three to eight years we will have a machine with the general intelligence of an average human being." — Marvin Minsky
- **1999:** "Artificial intelligence will reach human levels by around 2029." — Ray Kurzweil
- **2014:** "We will have fully self-driving cars on the road by 2017." — Elon Musk
- **2024:** "We are now confident we know how to build AGI as we have traditionally understood it." — Sam Altman

Twice, that pattern of overpromising ended in a funding collapse. **Amara's Law** names the shape of it:

> We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run.

For a course about testing your hypotheses[4] rather than believing them, this is the field's own cautionary tale — the hype cycle is what happens when nobody makes a falsifiable claim.

> "By far the greatest danger of Artificial Intelligence is that people conclude too early that they understand it." — Eliezer Yudkowsky

Representation

Six people the field's history remembers: Ada Lovelace, Alan Turing, Margaret Hamilton (who coined the term *software engineering*), Grace Hopper, Fei-Fei Li and Timnit Gebru. See history-of-computing-and-ai[5].

Next

2025-08-25-prompt-engineering[6] — the second half of the same session.

[4] courses/comp1100/experimentation.pdf
[5] courses/comp1100/history-of-computing-and-ai.pdf
[6] courses/comp1100/2025-08-25-prompt-engineering.pdf