

Women in Computer Science

Presented by

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Topics

- My heroines
- Women's contributions
- Some statistics
- Possible explanations for statistics
- My story
- Discussion

My Heroines

- Ada Lovelace
- Hedy Lamarr
- Grace Hopper
- Radia Perlman
- Sandy Lerner
- Meg Whitman

Ada Lovelace, 1815-1852



- Daughter of Lord Byron
- With Charles Babbage created plans for an Analytical Engine,
 - a machine capable of “developping [sic] and tabulating any function whatever”

Hedy Lamarr, 1913-2000



- Actress and co-inventor of spread-spectrum communications
 - Used by wireless networks and cell phones today!

Grace Hopper, 1906-1992



- Admiral in the U.S. Navy
- Invented the compiler, an intermediate program that translates English language instructions into the language of a computer

Radia Perlman, PhD



- Distinguished Engineer, Sun Microsystems
- Inventor of the Spanning-Tree Algorithm for switches
- Her thesis on routing in the presence of malicious failures remains the most important work in routing security.

Sandy Lerner



- Co-founder of Cisco Systems
- Went on to found Urban Decay Cosmetics
 - Does pink make you puke?
 - No animal testing
- Environmentalist

Meg Whitman



- President and CEO of eBay from 1998 to 2008
- Led the company to become the world's biggest online marketplace

Women' Contributions

- Collaboration
- Applications-orientation, understand the business case
- Analytical, synthesizing, holistic thinking
- Good at design, troubleshooting
- Good at networking and communications
- Superb programmers

Taulbee Survey

- **Survey** is conducted annually by the Computing Research Association (CRA) to document trends in computer science and engineering student enrollment, employment of graduates, faculty hiring, etc.
- Information is gathered during the Fall from PhD-granting institutions.

2007-2008 Survey

- A total of 264 departments were surveyed.
- The response rate was 73%.
- The diversity problem that has been evident in previous years is getting worse.

2007-2008 Survey

- 21.9% of tenure-tracked faculty positions went to women.
- 20% of PhDs went to women.
- 21.2% of MS degrees went to women.
- 11.8% of Bachelor's degrees went to women.

It Wasn't Always Like This...

- According to the National Science Foundation (NSF), the number of computer science and engineering degrees granted to women reached 37% in 1984.
- In the 1990s, increases in enrollment and degrees were the norm.
- In the late 1990s, an attrition problem became evident.
- It was followed by severe drops in enrollment.

On the Job

- In 2007, women accounted for about 51% of employees in management, professional, and related occupations, but they only represented 25% of computer programmers and 9.6% of computer hardware engineers.
 - Source: Women in the Labor Force: A Databook, Bureau of Labor Statistics, 2008.

Why the Low Numbers?

- In general
 - Perceptions about the job market
 - Lack of self confidence
 - Imposter syndrome
 - Bias in the classroom, advising
 - Lack of women faculty, mentors, heroines

Job Market

- According to the [Bureau of Labor](#):
 - The computer systems design and related services industry is expected to experience rapid growth, adding 489,000 jobs between 2006 and 2016.
 - Professional workers will enjoy the best job prospects, reflecting continuing demand for higher level skills needed to keep up with changes in technology.

My Story



Resources

- Computer Research Association's
 - Committee on the Status of Women in Computing Research
- University of Virginia
 - “Gendered Attrition from I.T.” nationwide study
- National Science Foundation
- University of Massachusetts, Amherst
 - “Women in the Information Age” project