// WOMEN IN CODING: BY THE NUMBERS

Women in Technical Jobs

10% Twitter

15% Facebook

17% Google

20% Apple

21% Pinterest

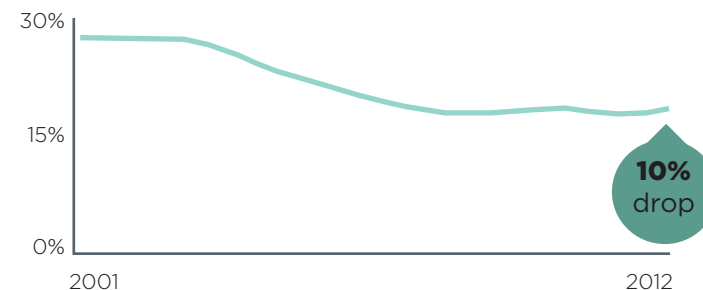**23%** National Representation
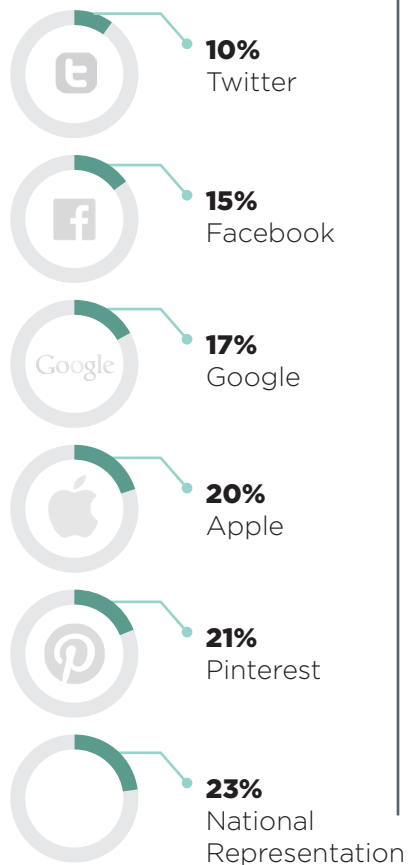
Women in Computing Occupations by Percentage

24.9% Comput-

8.5% Engineer-
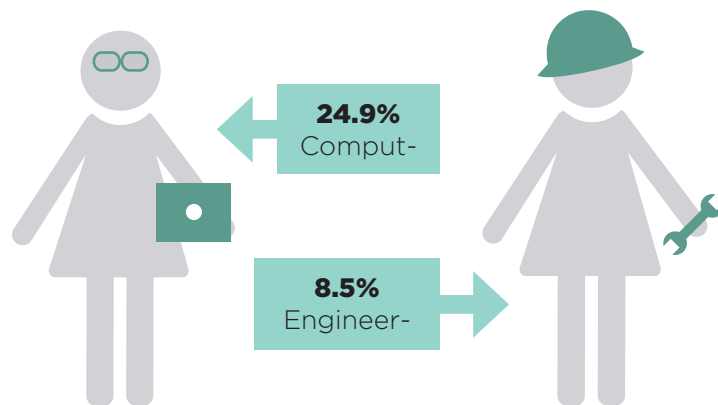
Demand for Technical Workers

1.4 Million Computer Jobs

400K Computer Science Students

Women Earning BA in Computer Science

30%

15%

0%

2001 — 2012

10% drop

Women's Representation in Computer Science Degrees Awarded in the US
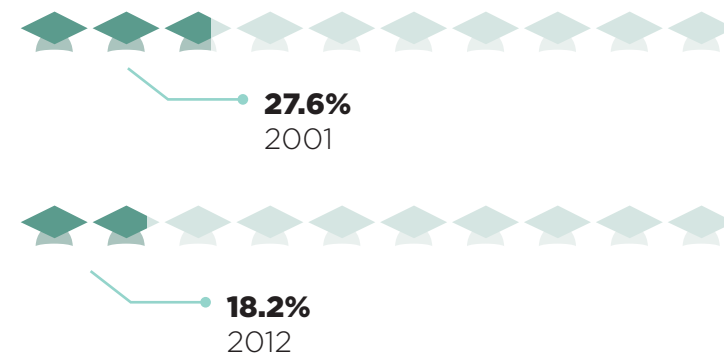
27.6% 2001

18.2% 2012

CODE
DEBUGGING THE GENDER GAP

// A HISTORY OF WOMEN IN CODE

1843 1946 1952 1972 1973 1978 1983 1984 1989 1990 1998 2012 2014

Ada Lovelace develops what is now considered to be the first computer program.

The ENIAC Programmers, a group of six women, became the first people to program a modern computer—the first general purpose computer, the ENIAC, for which they programmed ballistic trajectories for the military.

Grace Hopper invented the first compiler for a high-level programming language and popularized the idea of machine-independent languages. Her work led to the development of the COBOL programming language, which enabled the use of computers for business applications.

Sandra Kurtzig founded the technology company ASK Group with $2,000 in savings, growing it to become a dominant leader in business and manufacturing software. In 1981, ASK Group had its IPO (initial public offering), and Kurtzig became the first woman to take a Silicon Valley technology company public.

Karen Spark Jones introduced the concept of inverse document frequency (IDF) weighting in information retrieval. IDF is used in most search engines today.

Adele Goldberg did pioneering work in languages and personal computing as part of the Dynabook team and later, as manager at Xerox Parc. Her work with the Smalltalk language has influenced all modern object-oriented languages. Her work was also influential in the history of graphical user interfaces, what-you-see-is-what-you-get interfaces and user interface design.

Carole Shaw became the first female video game designer with the creation of her 3D Tic-Tac-Toe for Atari.

Dawn Lepore was hired as manager of the Charles Schwab's information center. Despite lacking a master's degree in business or computer science, she was promoted in 1993 to become Schwab's chief information officer. In 1995, she helped pioneer the firm's web-based stock trading. Under her leadership, Schwab became number one in online trading.

Sandy Lerner co-founded Cisco Systems, which became a *Fortune* 100 company that has enabled the extensive buildout of the Internet.

Fran Allen became the first female IBM Fellow. At IBM, she has been a pioneer in the field of compiler optimization and parallelization. In 2006 she became the first woman to win the Turing Award.

Helen Greiner co-founded iRobot, where she has been a pioneer in the area of robotics, launching products ranging from Roomba for consumers to PackBots for the US Armed Forces. She took iRobot public in 2005. In 2014, she was appointed Presidential Ambassador for Global Leadership by President Barack Obama.

Ginni Rometty became Chairperson, CEO and President of IBM, a *Fortune* 50 company. She has been a *Fortune* magazine "50 Most Powerful Women in Business" for ten consecutive years.

Diane Greene co-founded VMware, the leading provider of enterprise cloud and virtualization software. She now serves on the boards of Google and Intuit.

Megan Smith became the first female Chief Technology Officer of the United States, appointed by President Barack Obama.

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// LEARN MORE

The Catalyst Research Center for Equity in Business Leadership:
High Potentials in Tech-Intensive Industries, "The Gender Divide in Business Roles"

GeekWire: "This is How Bad the Gender Gap is at Tech Companies"

The Maria Shriver Project: "Why The Tech Sector Struggles
To Close The Gender Gap"

PBS *News Hour*: Computer Science's Diversity Gap Starts Early

TechRepublic: "The State of Women in Technology:
15 Data Points You Should Know"

Janet Abbate, Recoding Gender:
Women's Changing Participation in Computing

Python Tutorials: Amazing Grace

TEDxGotham 2011: Reshma Saujani, "Girls Who Code"

Verizon: Inspire Her Mind Campaign

Clayman Institute for Gender Research at Stanford
University: "Women in Technology"

Code.Org: "What's Wrong with this Picture?"

NPR: Planet Money, Episode 576: "When Women
Stopped Coding"

The Paley Center for Media: Cracking the Code:
Media Portrayals of Women in Science, Technology,
Engineering, and Math

Made With CODE

Medium.com: Tracy Chou, "Where are the Numbers?,"
Women in Software Database

AAUW: Solving the Equation: The Variables for Women's
Success in Engineering and Computing

The White House: The Untold Story of Women in Science
and Technology

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www.CODEdocumentary.com

// GET INVOLVED

The organizations below represent a sampling of groups that advocate for the closing of the gender gap in computer science. Visit their sites, download their reports, scan their news alerts and use their incredible, collective compilation of resources to expand your study of women in code and augment your post-film conversation.

Anita Borg Institute	Girl Develop It
Apps for Good	Girl Geek Academy
Black Girls Code	Girls Who Code
Code.org	National Center for Women & Information Technology
CODE2040	National Girls Collaborative Project
Code for Progress	Tech Bridge Girls
Code Now	Tools for Change
Digital Undivided	Women Who Code

{she's} coding
shescoding.org

She's Coding is an open-source website project launched in cooperation with the documentary film *CODE: Debugging the Gender Gap*.
She's Coding serves as a destination for anyone who wants to learn more about the gender gap problem in computer science and to become part of the solution. Whether you're a woman currently working in tech; a girl interested in learning to code; a male ally for women in computer science; or a company trying to find ways to increase diversity, She's Coding is an invaluable resource.

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DEBUGGING THE GENDER GAP