Technology is everywhere!
1.2 million number of computing-related job openings expected in the U.S. by 2022 (Bureau of Labor Statistics)

However ...
By the Numbers

- 1.2 million number of computing-related job openings expected in the U.S. by 2022 (Bureau of Labor Statistics)
- However ... only 26% of professional computing occupations in the 2013 U.S. workforce held by women
- Computer science is the only field in STEM in which the number of women receiving bachelors degrees has decreased since 2002
57 Percent of 2012 undergraduate degree recipients who were women
18 Percent of 2012 Computer and Information Sciences undergraduate degree recipients who were women
12 Percent of 2012 Computer Science undergraduate degree recipients at major research universities who were women
37 Percent of 1985 Computer Science undergraduate degree recipients who were women
64 Percent decline in the number of first-year undergraduate women interested in majoring in Computer Science between 2000 and 2012
Gender Diverse Technology Organizations and Departments

- Produce work teams that stay on schedule and under budget.
- Demonstrate improved employee performance.
## Opportunities for Women in Computing

### Resources

- NCWIT
- Anita Borg Institute
- AWIS
- ACM-W
- IEEE Women in Engineering
- AAUW
- MentorNet

[http://www.computerscienceonline.org/cs-programs-for-women/](http://www.computerscienceonline.org/cs-programs-for-women/)
Opportunities for Women in Computing

Scholarships

- Society of Women Engineers (SWE) Scholarships
  - Computing, engineering, biomed, chem
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- **Women in Technology Scholarship (WITS) Program** (sponsored by Visionary Integration Professionals (VIP))
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- Sony G.I.R.L. Scholarship Program (aspiring game developer: $10,000 and a paid internship)
- ACM-W
Opportunities for Women in Computing

Conferences and Events

- Grace Hopper
- ACM-W
- Regional Women in Computing Conferences (OCWiC)
- Google travel and conference grants (underrepresented groups in technology)
Why Computing for Women?
Expanding connections

... to people and places
... to limitless opportunities
... to every field
... to the world
... to the future
Lucrative Career

- It is not just about programming
- High-paying career opportunities
- The time is right
Exciting Research

- Creating software and hardware
Exciting Research

- Creating software and hardware
- Theory of Computation
Exciting Research

- Creating software and hardware
- Theory of Computation
- Human-computer Interaction
Exciting Research

- Creating software and hardware
- Theory of Computation
- Human-computer Interaction
- Applications to other fields
My Path

- BS in Management Information Systems
- MS in Mathematics
- PhD in Computer Science
My Research

Multi-agent and multi-robot systems
Trends in the History of Computing

- Ubiquity
Trends in the History of Computing

- Ubiquity
- Interconnection
Trends in the History of Computing

- Ubiquity
- Interconnection
- Intelligence
Trends in the History of Computing

- Ubiquity
- Interconnection
- Intelligence
- Delegation
Trends in the History of Computing

- Ubiquity
- Interconnection
- Intelligence
- Delegation
- Human-orientation
An agent is a computer system that is capable of independent action on behalf of its user or owner.
Expanding Computer Science: Agents

An Agent

An agent is a computer system that is capable of independent action on behalf of its user or owner.
Expanding Computer Science: Multiple Agents

A Multi-Agent System

A multi-agent system is a system that consists of a number of agents which interact with one-another.
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A Multi-Agent System

The field of multi-agent systems is influenced and inspired by many other fields:

- Game Theory
- Economics
- Philosophy
- Logic
- Social Sciences
- etc.
From a Multi-Agent to a Multi-Robot System
Challenges are few, but opportunities are many!
Thank You!

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