Women in Computer Science
Who is WICS?

Jo Atlee  Director of WICS
Debbie Smith  WICS Coordinator
Stephanie Hu  Assistants to the Director of WICS
Catherine Ni  (co-op position)

WICS Undergrad Committee
Women in CS at Waterloo

Admissions 2017

- 24% in CS
- 52% in CFM
- 43% in CS/BUS
- 26% in SE

Overall

23% women
# Women in the Tech Industry


<table>
<thead>
<tr>
<th>Company</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Google</td>
<td>18%</td>
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<tr>
<td>Etsy</td>
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<td>Activision</td>
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<td>Apple</td>
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<td>Zendesk</td>
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<td>Tapad</td>
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<td>Facebook</td>
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<td>POPSUGAR</td>
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<td>Shoplocal</td>
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<td>Twitter</td>
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<td>Slack</td>
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<td>Venmo</td>
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<td>Microsoft</td>
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<td>SurveyMonkey</td>
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<td>Yahoo</td>
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<td>Snapchat</td>
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<td>LinkedIn</td>
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<td>Elemental Technologies</td>
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<td>Mozilla</td>
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<td>Practice Fusion</td>
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<td>uSwitch, London</td>
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<td>Gilt</td>
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<td>Redfin</td>
<td>18%</td>
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<td>New Relic</td>
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<td>Quantcast</td>
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<td>Edmodo</td>
<td>2%</td>
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<td>ThoughtWorks</td>
<td>24%</td>
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<tr>
<td>Guidewire Software</td>
<td>17%</td>
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<tr>
<td>thoughtbot</td>
<td>11%</td>
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</table>

**19.83%**
Why So Few Women?

Are men innately better programmers?

Are women innately less interested in computing?

“no gender differences in quantitative measures of students’ abilities and performances”

WORLD – Female Enrolment in CS

Computing was “Women’s Work”

Mary Jackson

Katherine Johnson

NASA “computers”
Early female “computers”

early female computers performed astronomical calculations
“Computers” in World War II

women were recruited in WWII to compute bomb trajectories
“Computers” in World War II

75% of the codebreakers at Bletchley Park were women
“Computers” at NASA

NASA human computers processed flight and wind-tunnel data to assess and improve the performance of airplanes and rockets.

Female computers were deemed faster and more accurate than males.
“Computers” at NASA

Mary Jackson
Katherine Johnson
Dorothy Vaughan
Field of programming was initially dominated by women. Women were called “computers” because they caused the machines to compute various functions.

Even in the 1950s, women comprised between 30 and 50 percent of programmers.
In 1969, Margaret Hamilton oversaw the code that enabled the Eagle to land on the moon that year.
Aptitude for Programming

“Women are naturals at computer programming.”

Programming requires planning, patience, and the ability to handle detail.

Adm. Grace Hopper
Women in University CS Programs

Percentage of Women Graduating from CS University Programs in US


Biological Sciences
Mathematics / Stats
Physical Sciences
Computer Sciences
Engineering
men’s and women’s experiences are different
Stereotypes and Biases

Good News
• Explicit gender bias is declining

Bad news
• Unconscious or implicit gender bias remains widespread
• Women are as guilty of implicit bias as men are!
• Harvard Implicit Bias Test (implicit.harvard.edu)
Gap in Pre-University CS Experience

• Women (on average) start university with less programming experience

• Report nearly equal mastery of CS concepts in intro courses

• Have equal GPAs
Gap in Pre-University CS Experience

• Women (on average) start university with less programming experience

• Pre-university experience is not necessary

• Report nearly equal mastery of CS concepts in intro courses

• Have equal GPAs

Gap in Pre-university CS Experience

VS.

formal music lessons

playing songs

WICS Partners: Google  facebook  Microsoft  MEF  SAP  yelp
Self-Confidence Gap (Imposter Syndrome)

All these people really seem to have it together, and I still have no idea what's going on.
Letting the Side Down

Female students are less apt to speak out in class for fear that mistakes or dumb questions it will be taken as proof that women can’t do CS
Micro-aggressions

Social exchange in which a member of a dominant culture says or does something, usually without intended malice, that belittles and alienates a member of a marginalized group.

Women just aren’t interested in CS.

Really? You don’t look like a CS major.

Why do you want to hang out with geeks?

Why would you want to study CS?
The guys will be better than you.

You only got into UW CS because you are a girl.

Want me to help you with your CS homework?
Some Sexism

• Undervalued by teammates on course projects

• Undervalued by co-op employers
  – Not given challenging work
  – Assigned quality assurance or technical writing tasks rather than development tasks

• Misogynistic or inappropriate comments in lectures or labs
The truth will set you free – but first it will piss you off.

Gloria Steinem
Technical Girlfriends

It helps a lot to have a network of technical girlfriends

- UW CS guys are great
  - They will be your best friends, study partners, project partners
  - But their experience is not the same as yours

- Girlfriends (who aren’t in STEM) are great
  - But their experience is not the same as yours
WICS

WICS isn’t here because female students need extra help to succeed in CS.

We’re here to help you remove, reduce and overcome women-specific obstacles that you might face.

“Quit whining. It’s the same distance”
WICS

• To ensure that young women entering university see computer science as an option.

• To build an environment within UW CS where women are supported in their work and studies.

• Help UW CS women prepare to succeed in a male-dominated study environment or workplace.
WICS

WICS
• Orientation
• Technical Interview Prep
• Sexism Response Workshops
• Panel on Meaningful Careers in CS
• Events with Industrial Partners
• Grace Hopper Celebration
  • post-conference take-aways
• CAN-CWIC Conference
• Female Distinguished Lecturers

WICS Undergrads
• BigCSters mentoring program
• Technical Workshops
• Python Workshop
• Resume Critiques
• Panel on Fem Tech 101
• Events with Industrial Partners
• Speaker Series
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WICS Partners:
[Logos of Google, Facebook, Microsoft, MEF, SAP, Yelp]
Upcoming Events

• Thur. Sept. 13, 4:30-6:00, DC 1302
  Facebook Primer on Hackathons (food + swag)

• Wed. Sept. 19, 5:00-6:30, EIT 3142
  Google Resume Critique (food + swag)

• Wed. Oct. 3, 4:00-5:30, QNC 2501
  Yelp Mock Interviews

• Tue. Sept. 11, 4:30-6:00, DC 1301
  Women in Math Welcome Event
Grace Hopper / CAN-CWIC Conferences
How to Find out More

• Read email sent to cs-female-undergrads

• Join the WICS Facebook group
  Women in Computer Science, Waterloo

• Bookmark the WICS calendar
  https://goo.gl/hxZpPd

• Read the CS blog
  http://csatuwaterloo.blogspot.ca/
• Tech Ladies (Facebook group, newsletter)
• Lean In KW (Facebook group)
• PyLadies TO
• Rails Girls TO (Meetup)
• Women in Technology (Slack)
• CanWIT (LinkedIn)
• Lesbians Who Tech (Newsletter)
• Ladies Storm Hackathons (Facebook, Slack)
• Women Who Code Waterloo
• Women in Tech TO (Slack)
• Women Techmakers (Newsletter, Slack)
• Women in Tech Mentorship Programs at Communitech
• Anita Borg Systers (Mailing list, Slack)
• Ladies Get Paid (Slack, podcast, newsletter)
• And of course, UW WiCS!
Parting Words

• Build and use your network of technical women.

• Be yourself. This is what a computer scientist looks like!
WICS Has Your Back

"There is a special place in hell for women who do not help other women."

- Madeleine Albright