

CMSC 304 Computer Ethics

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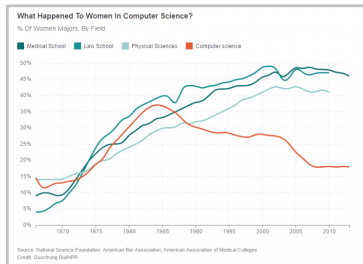
Representation in STEM (mostly CS)

- Axes of representation
 - Gender, race, ethnicity
 - Others: Family status, disability status, age, orientation, ...
- Accepting the existence of subconscious bias can be difficult
 - It is nonetheless extremely well studied
- What did you learn?
- What are the facts?
- What should we do?

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Changes over time

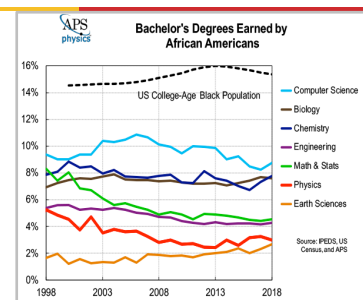
- Diversity in tech is not improving
- For women, it has been getting worse since the mid 80s
- For BIPOC it has been flat at an extremely low level
- Things are not improving without intervention



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Changes over time

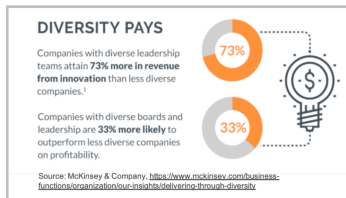
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Why Do We Care?

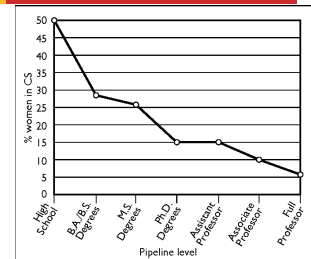
- Economic advantages to diverse teams
 - Regardless of why, it's well established that **diverse teams do better**
 - Diversity of experiences
 - Diversity of ideas
- More engineers on market
 - Lack of diversity = loss of talent
- Ethics: discrimination is fundamentally unfair
 - Is it fair to 'make' people do better?



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The Pipeline Problem

- Can mean two different things
1. We don't have enough diversity in STEM starting early
 - Students who learn CS in high school are more likely to become CS majors, CS majors are more likely to become grad students, ...
 - "We don't hire more [X] because we don't have enough applicants"
 2. The Incredible Shrinking Pipeline
 - Why does it occur?
 - Lots of reasons



Camp, Tracy, "The incredible shrinking pipeline," Commun. ACM 40 (1997): 103-110

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nibabav.com/illustrations/career-resume-hiring-job-interview-3449422

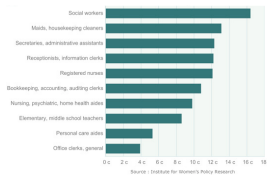
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C.A. Moss-Racusin et al. / *Proceedings of the National Academy of Sciences*

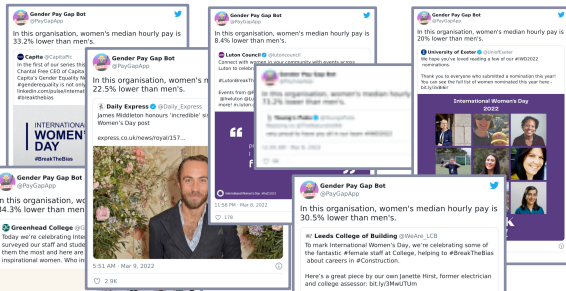
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- After controlling for:
 - Experience, Education, SES, hours worked, spousal income
 - Mothers made, on average, 4% less per child
 - Fathers made, on average, 6% more
- Résumé studies: either mention the PTA or don't
 - Again, otherwise identical
 - "Mothers": \$11,000 < childless women
 - "Mothers": \$13,000 < fathers
- Gap widens for lower-income jobs
- Discussion: why mothers vs. parents?

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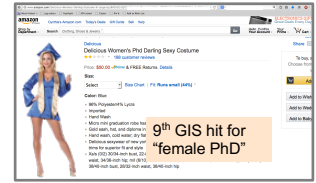
- What about differences in, e.g., mathematical ability?
 - Assuming you control for other factors
- There are none **that aren't correlated with education**
 - That anyone has been able to find
 - People have certainly looked
- Children in different groups are educated differently
- Do changes to welcome diversity hurt the majority?
 - Apparently not

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- Diversity: representation of different groups **exists**
- Integration: the behavior of the industry would **change** as a result of improved representation in that community
- “Diversity is just membership ... Integration is influence, power, and partnership.” (Charles Isbell)
- Get more people in the game vs. changing the rules of that game

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- Once people are present/in the room...
- People are not as welcoming to people of diverse backgrounds
- Women and BIPOC are not treated the same
 - Not doing the same work
 - Not given the same choices
- Aggressions are a real thing



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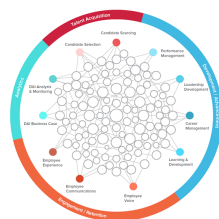


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- Accept representation in technology as an **ethical** issue
- Understand the nature of the problem
 - Existence of subconscious bias
 - Awareness of the complexity of the space
 - Consider the Incredible Shrinking Pipeline
- Take **conscious** action to address representation
- But what specifically?

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- When might it matter to you?
- What can/should people do differently?
 - Employers?
 - Teachers?
 - Schools?
 - You?
- What would you personally change?
- Professionally?
- In the next 5 years?



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- <https://onlineethics.org/cases/cases-teaching-engineering-ethics/bringing-first-woman>
- What should have been done differently **initially**?
- What should be done **now**?
- Who is **responsible** for fixing the situation?
- Who are the stakeholders?
- What should the stakeholders do?

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