A Longitudinal View of Gender Balance in a Large Computer Science Program

Amy Baer and Andrew DeOrio

Introduction
- Computer Science has a persistent lack of women's participation.
- We lack a fine-grain analysis of the gender disparity as it changes throughout the undergraduate Computer Science curriculum.

Gender Balance Parity
- Recently, men and women withdraw at the same rate for all courses except EECS 281.
- Withdrawal rates are not a major contributor to the CS gender disparity.

Overall GPA
- Recently, women in CS LS&A and CS Engineering receive the same or higher grades than men.

Gender Balance Discrepancies
- Among those who pass, proportionally more women than men choose not to continue in the sequence. This is true for all courses except EECS 281 and Upper Level courses.
- Men and Women fail at similar rates for all courses. Fail rates are not a major contributor to the CS gender disparity.

Conclusions
- Modest increase in women's participation in all Computer Science courses over the past 10 years. Despite this increase, the gender disparity is still large.
- Women often choose not to continue in Computer Science at a higher rate than men.
- Attrition disparity is not due to women failing or withdrawing at a higher rate than men.
- Attrition disparity could be related to women often receiving lower grades than men in EECS courses despite having the same or higher overall GPAs.

Future Work
- Why do women often receive lower grades than men in EECS courses despite having higher overall GPAs?
- Are grades connected to attrition?
- What are the intentions of students taking these courses and how does that factor into their decision to continue in the sequence?

Research Questions
- Where in the Computer Science curriculum does the gender balance change?
- Why does the gender balance change throughout the Computer Science curriculum? Do grades play a role in this change?
- Where should future research focus?

Data Set
- 29,354 unique students who took a CS course over the past 10 years at U of M
- Gender, majors, minors, academic level, GPA, courses and grades

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Gender Balance '17-'18

Gender Balance Parity

Gender Balance Discrepancies

Conclusions

Future Work