

Thesis Portfolio

A New CS Curriculum: Bridging the Gap Between In-Class Assignments and Real World Problems

(Technical Report)

A Sociotechnical Analysis of Social Media Data Usage by Tech Companies

(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science
University of Virginia • Charlottesville, Virginia

In Fulfillment of the Requirements for the Degree
Bachelor of Science, School of Engineering

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Sociotechnical Synthesis

The capstone project and STS research paper both deal with the disconnect between providers and consumers in the field of computer science. The capstone project deals with how the current CS curriculum does not translate well to interview questions that are asked of CS students when applying for internships or full time jobs. The Capstone project also examines how students would like to have courses or adjusted material that make it so what they learn in class feels more applicable to the real world and to interviews. The STS research paper examines the disconnect between what the developers of social media companies feel is appropriate usage of user data and what users know and feel about how their data is used. This is done by utilizing a social construction of technology framework to examine the impacts of specific social media company practices. Working on these two projects together made it apparent that many individuals who work in the field of computer science tend to focus too much on the computer science aspect of their job. This results in these individuals having a hard time remembering how to take into consideration how their work impacts other people.

The Capstone project shows how either changes need to be made to the curriculum for CS students or how interview questions need to be changed. Only the changes made to the curriculum will be examined for this Capstone project. Specifically, certain courses tend to have more overlap with technical questions asked in interviews and so this distribution of questions will be illustrated. On the other hand, behavioral questions are almost entirely non-existent in any form in the current CS curriculum, so alternatives to prepare students for this were looked at in greater detail. Overall, it is likely that either small changes to the current curriculum or an entire new course would provide a great benefit to students trying to find jobs in the CS industry. Small changes could include things such as including common interview questions related to the

course in exams or adapting assignments to replicate large scale projects that are done in the CS industry.

The STS research project focuses on how user data is collected, processed, and used by various social media companies. The ways in which they are used and the technologies that are influenced by this user data is examined and shown to have led to a lack of trust in data privacy which also contributes to a lack of diversity in thought. A growing uneasiness with how these companies manage data suggest that noticeable changes will start to develop in social media that will have a large impact on how these companies run their business.

Completing these two projects has shown how computer science is a constantly changing field and how it is important for individuals to be able to adapt to changes in opinions from the general public. Additionally, these projects have shown me the importance of fully examining the work I do. Understanding the interactions between technologies and the groups of people it influences can help prevent disconnects and result in higher quality work.