

Thesis Project Portfolio

Computer Science Curriculum Redesign Proposal

Analysis of The FTX Cryptocurrency Exchange Collapse

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

In my technical research project, I proposed some potential changes to the computer science (CS) curriculum at UVA, which is heavily affected by the network of human and non-human actors established by UVA. To gain additional insight into how these actors can affect the broader network, my STS research examined how faulty actors in FTX can cause a network to collapse. By understanding what social and technical actors can cause a network to fail, I was able to apply it to the technical project by proposing how to avoid faulty actors and improve weaker relationships within the network. While my technical and STS research are exploring different types of networks, they are still both addressing a larger and more complex network, allowing for relevant data to be collected and applied to the technical proposal.

My technical work focuses on how restructuring the current CS curriculum at UVA can help improve employment rates across the department. My proposal addresses a problem where there is increasing difficulty in obtaining internships and jobs within computer science because students need to be equipped with technical skills sooner than they had to in the past to remain competitive. The changes I propose in my work attempt to address this by moving heavy technical classes earlier into the curriculum while pushing theory-heavy classes back and creating some courses to provide support for students preparing for internships and job applications. The goal of this project is to help provide UVA CS students with better opportunities and preparation for applying to the industry while maintaining such a large CS program.

My STS research explores how FTX's network failed on such a grand scale from the perspective of an actor network theory analysis. The research focuses on the human and non-human actors within the FTX network, such as celebrities, advertising, leverage, and the complex relationships between them. In the paper, I claim that complex relationships between

technical and social actors created a cycle of monetary exploitation within FTX, which accelerated its growth but ultimately led to its failure. My paper further explores the specific roles each actor played within the network as well as the important relationships they had with other actors and their effects. The goal of my research is to raise discussion about how the entire FTX network was responsible for the failure rather than a single bad actor.

Being able to work on both the technical and STS research projects together, I was able to understand that I need to consider both technical and social actors in the UVA CS department when choosing what changes to make. Learning how these actors and their relationships impacted one another in the FTX network guided my decision-making in the technical proposal, especially when considering relationships between different actors, such as student-course or student-faculty relationships. By carefully considering these factors that I learned from my STS project, I was able to build a more intricate technical proposal and guide any technical management work that I may have in the future.