

Thesis Portfolio

ChoreoNova Ticketing System
(Technical Report)

Technology in the Aviation Industry
(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

Computer science is all the buzz and on the rise in modern society. Almost everywhere, computer technology is finding a way to integrate itself into, changing virtually every aspect of both life and society as a whole. In this thesis, the effects of computer science on a couple of aspects of society will be further analyzed and studied: eCommerce, the arts, and the network of workers that forms the aviation industry.

For the technical aspect of my thesis, I worked on a capstone project for the Department of Computer Science that was tasked with building a ticketing system for a local Charlottesville arts company. This project required us to work together as a team and use the technical skills we had gained from our years as computer science students to code a final product for a local client. The client we received happened to give us the opportunity to provide assistance to the arts sector, which many consider to be the “opposite” field to STEM, which is what computer science falls under. Our project in particular gave us a better glimpse into how computer science blends together with the arts as well as the growing industry of online commerce, or eCommerce. In the digital era, in order to continue to stay afloat, arts companies need to modernize and move online to be able to reach a broader audience. Through this capstone project, I was able to see how smaller arts companies with limited funding might fall behind in our society due to not being able to upload themselves onto the internet and reach this increasingly virtual society of ours. I am glad I was able to provide a hand in helping them modernize and move online so that the arts do not become a relic of the past and can continue to survive into the future for future generations to enjoy.

For my STS thesis, I decided to look at the effects technology as a whole has on the aviation industry, particularly workers within the industry. The aviation industry has always been

a topic I have been personally very interested in, and it definitely affects many people as it is the only feasible option of travel to many far away places today. Through my research, I was able to better understand how technology affects human beings, from the help it provides to them by making tasks easier to the fear of being replaced by technology in their jobs to the various cognitive effects technology can have on mental models of its users. While my thesis mainly focused on the aviation industry, many of these technological effects can easily be translated to all aspects of society as, after all, there is no longer any aspect of society that has not been touched by the ever-changing technology of today.

One of the greatest aspects of working on such a capstone project was being able to give back to the local community. Projects like ours where students get the opportunity to work with a real life client definitely help engineering students see how their work can help society and make an impact on the real world. Similarly, doing research for my thesis also provided me with a broader understanding of the social and human implications of my field of study, computer science. In engineering schools, there tends to be a very heavy focus on STEM related fields as, ultimately, that is the field of work engineers will be working in. However, all the work done by engineers is meant to make a positive impact on the surrounding society. If engineers do not understand how their work may impact those around them, this could lead to very dangerous situations of engineers creating a project that harms more people than helps. Thus, capstone projects and sociotechnical research are very important for engineers to learn while still in college so that they can make a positive impact on society before they enter the real world after graduation.