

Thesis Portfolio

Safe and Sustainable Fleet Management with Data Analytics and Training
(Technical Report)

Social Media: A Dangerous Marketing Platform from a Consumers' Perspective
(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science
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Bachelor of Science, School of Engineering

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Sociotechnical Synthesis

My research paper titled “Social Media: A Dangerous Marketing Platform from a Consumers’ Perspective” goes through the dangers social media poses from a consumer standpoint. The motivation for the research came about from personal experiences in regards to an addiction to social media along with events of spending more money than necessary to buy different artifacts from electronics to clothes. I wanted to dive deep into understanding how businesses can constantly engage me with products that I have an interest in and convince me to both buy products freely as well as lessen the guilt around purchasing such products. Social media has its benefits when connecting people around the globe, however, the information collected along with the addictive nature of such platforms allows businesses to optimize their marketing techniques and push their products and services down consumers throats. This research paper serves to identify how the technology we enjoy can be leveraged against us.

The technical portion of my project focused on producing a training program for the University of Virginia’s (UVA) Facilities Management (FM) team to use to increase safety and sustainability habits within their fleet. Data was collected from each vehicle through telematic sensors and was analyzed by our team to identify areas of improvement. We were able to produce UVA-specific statistics throughout the training program for the drivers to understand the current state of the fleet. As a result of the training program, we were able to identify decreases in risky driving behavior along with an increase in overall compliance in regards to State and FM specific regulations. The results of the program were presented to FM leadership and at the 2021 IEEE Systems and Information Engineering Design Symposium. Following this semester, it is planned to hand over the training program to FM for iteration and improvement.

In my STS research, I was able to identify the impact of social media on both consumers and businesses. I looked into the history of consumption and the evolution of currency and money to better understand the significance and success of e-commerce. I learned that social media can lower self-control and increase the propensity to shop and make purchases to achieve dopamine hits similar to the “like” and “comment” features of popular platforms. Research also showed me the amount of data that is collected and the opportunities businesses have to target advertisements towards specific demographics and people of interest. As a result, I was able to better understand the high unforeseen costs of our phone addiction.

My technical project taught me how to conduct meetings with a client to better understand their objectives and desired outcomes. The data collection and analysis portion helped me apply software skills from R Studio to expedite analysis and produce meaningful statistics. Developing the training program increased my understanding of effective training programs and how to communicate information productively. The STS research paper showed me the impacts of social media on general habits and highlighted the amount of information social platforms can collect when provided. Understanding how social media marketing works increased my awareness to take necessary breaks and precautions to minimize the time I spend on these respective platforms.

I would like to acknowledge Michael Duffy, Sandra Smith, and FM leadership for their work in making this project a success. I would also like to thank Thomas Gresham, James McDonald, and Nick Scoggins for being solid team members along with Moeen Mostafavi for his guidance and support regarding the data analysis portion of this project.