

Harnessing Data and Application Development for Food Waste Reduction
(Technical Report)

The Ethical Agenda of Edward Snowden Under Utilitarianism
(STS Research Paper)

An Undergraduate Thesis Portfolio

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By

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Table of Contents

Socio-technical Synthesis

Harnessing Data and Application Development for Food Waste Reduction

The Ethical Agenda of Edward Snowden Under Utilitarianism

Prospectus

Alex Grace

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STS 4600

Socio-Technical Synthesis: Digital Therapeutics and Whistleblowing

My technical work and STS research are not strongly related because they pertain to different technologies and required exploration of distinct subjects. However, I have been able to connect several ideas from the research on Edward Snowden and the ethics of whistleblowing to technical decisions relating to the tracking of private data and location services as part of a digital therapeutics mobile application. Mobile application development necessitates decisions based upon how to handle user data that may be deemed personal. Researching Edward Snowden and the ethics of whistleblowing allowed me to better understand how people may want their data to be handled and secured, which is a common theme across both projects.

Primarily, my technical work explores digital therapeutics and the benefits of a therapeutic application delivered via mobile devices. My capstone partner and I created a mobile application specifically for University of Virginia students. Using react native and geolocation services to track student movement, we assign health points for being in a specific location for a certain amount of time. The idea is to ensure that students are spending a balanced amount of time studying, sleeping, socializing, and being active. The application alerts a student if they can improve their health “rank” and rewards them for sustaining healthy habits. The application also features a meditation interface which will allow students to track their heart rate and ultimately set aside time for daily mental health practice.

In my STS research paper I examined Edward Snowden's case of whistleblowing, the act of whistleblowing as a whole, and the consequences of both through the lens of utilitarian ethics. I also employ the National Society of Professional Engineers Code of Ethics, ultimately arguing that Snowden's actions were justified not only as an ethical human being, but as a professional engineer. I walk through several pillars from the Engineer's code of ethics and present unethical activity being conducted by the National Security Agency which Snowden has leaked to the public. The goal of my research is to facilitate and provoke discussion about standards and actions for engineers in an ethical dilemma or decision making process, like Snowden.

By working on these projects simultaneously, it enhanced my perspective and understanding of each. I was able to approach the creation of my own mobile application with sensitivity to privacy, ethical decision making, and consideration of transparency, all of which I would not have considered had I not been researching Edward Snowden and corresponding moral principles. Furthermore, my digital therapeutics application development allowed me to comprehend what decisions engineers may be faced with in the professional world. Overall, each project added value to the other.