

Thesis Portfolio

Puzzle Poetry

(Technical Report)

Ethics of Data Collection

(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

In this paper I deal with issues created by the existence of information. In the technical paper, this is seen through the need to obtain information about the current intermediate working state of a process to determine if it can be ignored in order that the developed algorithm could complete in a reasonable amount of time without taking an inordinate amount of space. In the STS research paper, I looked at the information collected by Google about its customers in order to make a moral judgement as to whether their actions were ethical. In this paper, I come to the conclusion that Google is not acting unethically by employing a formulation of Kant's Categorical Imperative and then comparing the actions of Google to the actions we would expect from a normal business. In the Capstone Research I developed an algorithm to turn the lower six lines of a sonnet into a puzzle by implementing an algorithm according to the branch and bound paradigm. In doing these projects simultaneously I was able to gain a greater appreciation for both the technical requirements to work with large amounts of information in a timely manner and the delicate balance that is often faced between timeliness, space efficiency, and usability. From these projects I have gained a greater appreciation for the complex issues that companies face in what information they should store, in both the sense of it potentially being detrimental to their image while still carrying the physical costs associated with data storage.