

Thesis Portfolio

Social Networks and Archival Context OpenRefine Plugin
(Technical Report)

**Evaluating the Reliability of Biometrics vs Passcodes and its Effects on the Publics’
Perception on Mobile Security**
(STS Research Paper)

An Undergraduate Thesis

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Sociotechnical Synthesis

(Executive Summary)

Optimizing the Transformation and Mapping of Data & the Security of Biometrics vs Passwords

With the development of technology, data has become increasingly important in terms of use and security. Though both my STS and technical projects focus on data, they are not related at all. My technical project produced a plugin that takes a large amount of data points from different files, processes and organizes this data, and uploads it to a database for a site called Social Networks and Archival Context (SNAC). On the other hand, my STS research explores the rise of biometrics, how it has competed with passcodes in terms of usage, and how they have affected security on mobile devices.

In my technical project, a group of 8 students (including me), was tasked with creating a plugin for a website called SNAC, which is a free online resource helping users discover information about families, organizations, and people that are documented in historical resources and their connections between one another. The plugin however, was implemented as a component of OpenRefine, a third-party, data cleanup and transformation tool that was developed by Google to handle information management. The project at hand serves to create an extension of the OpenRefine tool which can allow SNAC users to upload, edit, and consolidate new or existing data through a powerful web-based interface. Some challenges that the group had to overcome were collaborating within an 8-person team, learning and adjusting to all the intricacies of an existing project setup, and becoming acquainted with unfamiliar frameworks and modules necessary to build the plugin.

For my STS research, I tackle a completely different subject regarding data. With people storing more sensitive information on their mobile devices and increased vulnerabilities, mobile security is more important than ever. When smartphones were still an emerging technology,

passcodes were the most common security feature. In recent years however, biometrics, or the unique identification technology based on human characteristics, has become a popular technology for information security. How has this evolution of security affected the public's view on security in mobile phones? What are the effects of the demand for authentication and security technology on human society? Is biometric security more secure than passcode security? These are the main questions that my STS research seeks to answer. User perception also has a major influence on adoption. Through widespread use and perception, demand for phones and better security drives technological advancement in biometrics, resulting in more advanced and secure implementations on mobile devices. These human and social factors are significant in determining the development of biometrics in mobile devices. Hence, I will also be analyzing the relationship between these societal and technological components in the STS research portion through the context of Thomas Hughes' technological momentum framework.

My STS and technical research endeavors combine to elucidate the implications of data. While it is a complex notion that can be used for comparing information across platforms, it is also a commodity that must be protected. The technical project serves to show the flexibility in which data can be molded to serve to a variety of different necessities whereas the research project presents an analysis on the need for security and provides a solution for safeguarding users' personal data.