Thesis Project Portfolio

Git Integration for Legacy Software

(Technical Report)

The Commoditization of User Data in Web Services:

A critique of the tech industry's data practices

(STS Research Paper)

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Sociotechnical Synthesis

This thesis portfolio will highlight a technical project in software engineering and a sociotechnical privacy crisis in the data engineering industry.

"Git Integration for Legacy Software" details a project during a software engineering internship at a defense contractor. A lead software engineer had the idea to integrate a version control system into a legacy application to help with file recoverability. By the end of the internship, the legacy application had the ability to track the files uploaded to the system. The addition of this file tracker allows the client to view previous versions of the same file they are currently using. Files get lost and damaged all the time, so having a second line of defense against fileloss proved comforting for the client. The project showed that maintenance is not equivalent to stagnation. Software in its maintenance phase has plenty of room to improve. New feature ideas can come up spontaneously. Bugs are constantly being discovered as the client uses their product.

Design in engineering has an overlooked human aspect. Good product design requires engineers to understand the user. It allows a connection to thrive between the consumer and the business. The consumer will feel heard and valued. Secondly, businesses are able to have outside perspectives about their devices and services. This understanding can be obtained through critic reviews, user interviews, surveys, and general empathy. These methods were the primary form of data gathering prior to the internet and are still used today.

Companies now have alternative methods to effortlessly collect information about their customers. User data has been commoditized in the internet age. Browsing habits, internet search history, and frequented pages are all tracked by companies to be used in analytics or sold for profit. Phones, computers, smartwatches, and cameras are found everywhere and constantly

report data to the cloud. Profiles can be built for users detailing their personal information and interests. Privacy advocates see this publicity and transaction of information as an invasion of privacy while many have no issue against their information being available. “The Commoditization of User Data in Web Services: A critique of the tech industry’s data practices” argues that data privacy should be a fundamental right to all internet users. The research paper explores multiple cases of privacy invasion by Amazon, Zoom, and the US Government. The original intentions of surveillance often appear harmless in the cases of terrorist prevention programs and targeted advertisements. However, the implications of a monitored society is oppression. This is because the surveyed people sacrifice their freedom of expression to look impressionable to their surveyors. The objective of this research is to use the current state of data privacy to promote data awareness in the reader.

The topic that relates legacy application projects to data privacy in the tech industry is user experience. Both the intern working on legacy software and the engineers in the data driven company want to understand the user and their struggles. This is so that they are able to improve designs to create more effective products.