Thesis Portfolio

Utilizing Passive Data Collection to Detect Anxiety and Depression
(Technical Report)

Health Data Privacy in a Digitized World
(STS Research Paper)

An Undergraduate Thesis

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Sociotechnical Synthesis

With technological advancements and improved analytical methodologies, more health-related personal information can be collected in digital forms by organizations other than healthcare providers. The digitization of health data has various societal benefits, including increased quality and quantity of data, improved access, and reduced healthcare costs. However, new privacy and security concerns have emerged along with this process. For example, if health data are collected and managed by business organizations, such as Facebook, these data can potentially be commercialized and users' privacy may be compromised. The goal of this STS research is to determine and understand the privacy and security issues introduced by the digitization of health data and propose frameworks to better ensure patients' and users' privacy rights.

In addition to the digitization of health data, technologies have also enabled the statistical inference of health status from data collected. One example of such an application is to utilize analytical methodologies, such as machine learning to analyze and determine the level of depression and anxiety based on mobile contextual data collected from individuals. This method can provide a more convenient and inexpensive way of diagnosing depression comparing to in-person examination or lab testing. A technical project has been conducted to evaluate the effectiveness and accuracy of such an approach.