EASE Project

EASE Study aims at building a smart system that empowers individuals who are suffering from traumatic experiences by combining sensing and machine learning to improve treatment. Our goal is to develop a web-based intervention that automatically adjusts to user’s responses to provide the most optimal service depending on user’s emotional and physiological states. It is funded by the 4-year Smart and Connected Health grant through the National Science Foundation.

Reaching trauma populations to provide proactive, scalable, evidence-based, person-centered, and cost effective interventions is a billion dollar problem. To achieve scalability, researchers have turned to web-based technologies. Research/treatment for many other classes of health problems are also turning to web and mobile-based intervention including weight management, addiction management and smoking cessation. Although evidence exists for clinical effectiveness of many web-based interventions across this wide base of interventions, effective engagement with these interventions remains a significant concern. Moreover, no data are available concerning the unique engagement challenges for trauma survivors using such tools.

Self-support websites, especially for trauma, cannot be generic web sites; they need to autonomously adapt to the patient’s needs. The *Journey to Trauma Recovery*™ website was developed based on social cognitive theory to empower trauma survivors. It consists of a self-assessment and six modules targeting skills related to recovery. Although the site has been shown to be better than standard care or static web elements, enhancing user engagement is still imperative as dropout rates are around 30% to 40%. Indeed, as psychologists are trained to adapt to balance a patient’s mental state with the doctors’ broader goals for where treatment needs to
go, an effective web-based or mobile platform must also be capable of adapting to patients based on their mental and physical state.

In this study, we monitor physiological reactions and facial expressions while users work on the modules of the *Journey to Trauma Recovery*. These physiological and facial expressions data will be used as an indicator for engagement, which will be used in developing a smart automatic adapting system.