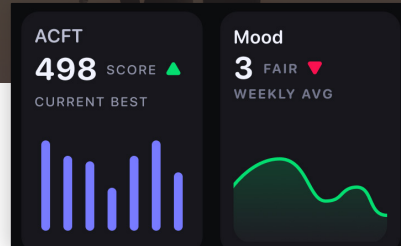


Center for Body Computing (CBC) The Lightning Platform

2022 - Current

Project Leader: Dr. Leslie Saxon



Background

The Lightning Platform is a digital health and human performance research software platform launched by the Center for Body Computing (CBC) at the USC Institute for Creative Technologies (ICT) in 2022. It includes functionality to obtain consent and interact with research subjects, using a secure and custom-built mobile application (app), which connects to a variety of body-worn sensors including Apple Watch, glucose monitors and other consumer and medical grade wearable devices. This enables the Lightning Platform to detect, record and display real-time and highly accurate measurements of the individual human physiology, metabolism, mental and cognitive status - what the CBC refers to as continuous biomarkers.

In addition to its detection, monitoring and display functionality, the Lightning Platform provides short-form original videos and other content modules, developed by subject matter experts and informed by science-based guidelines. These are extensive and include material within the following subject areas: Physical training and recovery; Psychological and cognitive fitness; Sleep hygiene; Metabolic health; Education related to treatment options (physical, mental, psychological, cognitive, social and spiritual).

Objectives

The Lightning Platform is being used by the Center for Body Computing to support several multi-year research studies. These will provide real-time holistic health measurements, including biomarkers detecting acute and chronic brain injury, towards creating a personal health record (PHR). The overarching goal is to reduce and eliminate long-term adverse outcomes and optimize individual health and performance for service members.

1. cORA 2.0: 200 participants: 3rd Special Forces Group (Airborne), Fort Bragg, 1st Reconnaissance Battalion, Camp Pendleton.
2. Marine Battalion study: 500 Marines, Camp Pendleton
3. SFARTAETC: 15 instructors: 1st Special Forces Command (Airborne).
4. SOCPAC: 350 senior service members: Special Operations Command, Pacific, Camp HM Smith, Hawaii
5. NTC: 150 Brigade senior leaders, National Training Center, Fort Irwin, CA

Results

This work is funded under DoD and Army grants and results are expected in 2024/2025.

Next Steps

Published academic research papers are available from <https://ict.usc.edu/research/publications>

(Search engine keyword: USC ICT Publications)

Project Leader: Dr. Leslie Saxon

Established in 1999, the USC Institute for Creative Technologies (ICT) is a Department of Defense (DoD) University Affiliated Research Center (UARC), sponsored by the US Army. Harnessing Hollywood-derived creativity with academic innovation and military-domain expertise, ICT conducts award-winning R&D in Artificial Intelligence (AI), Computer Graphics, Geospatial Sciences, Human Performance, Learning Sciences, Modeling, Simulation & Gaming, Mixed Reality (MxR), Medical VR, Narrative, and Virtual Humans.