



Seminar Experience

ELECTRICAL & COMPUTER ENGINEERING

Friday, September 12 FIU Engineering Center

10:00—11:00 am

EC Room # 1107

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“What are the Useful Physiological Targets for Biosensor Technologies?”

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ABSTRACT

Wearable biosensors have been popular conceptions in science fiction, including Heinlein's Starship Troopers, where every individual wore a physiological status monitor. Science fiction helps to describe goals for scientists and Heinlein's wearable biosensor for soldiers is already old news relative to what is possible with modern technologies. We are now in an era where engineering, math, and physics will help to solve many problems in the biosciences (“convergence science”) and digital natives have greater expectations for technology solutions for everyday activities, including apps for health and fitness monitoring. Currently available gadgets have not realized the potential for useful biosensing, especially in the thoughtful development of the most relevant sensors and the development of well validated algorithms and models to interpret the data from combinations of sensors. Part of the problem seems to be a lack of vision for the important applications that are possible and some consideration to how to identify the most useful measures that would serve those applications.

BIOGRAPHY

Karl E. Friedl, PhD, is a Professor (Adjunct) in the Department of Neurology, University of California at San Francisco, with interests in physiological modeling, wearable biosensors, and the metabolically optimized brain. He retired from the Army after thirty years of service; his last assignment was Director, Telemedicine and Advanced Technology Research Center (TATRC) for the US Army Medical Research and Materiel Command in Frederick, Maryland (2006-2012). He received his PhD (Integrative Physiology) from the University of California at Santa Barbara, in the University's Institute of Environmental Stress in 1984. He has published 150 papers, book chapters, and other reviews and technical reports. As a research manager and director, he has facilitated research cooperation between government agencies including the DoD, VA, NIH, NASA, FDA, and USDA and organized and directed research initiatives such as military women's health, Gulf War illnesses, bone health, and Parkinson's research programs. He is a fellow of the American Institute for Medical and Biological Engineering (AIMBE) and a member of the Endocrine Society, American Society for Nutrition, and AMSUS – the Society of Federal Health Professionals.