

2ND International
Neuroergonomics Conference

**THE BRAIN AT WORK
AND IN EVERYDAY LIFE**
JUNE 27 – 29, 2018

Drexel University / Philadelphia, PA - USA

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2nd International Neuroergonomics Conference

Conference

Start Time: 27 Jun 2018, 9:00 AM

End Time: 29 Jun 2018, 6:00 PM

Where: Drexel University, 3210 Chestnut Street, Behrakis Grand Hall, Philadelphia, PA, United States

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Neuroergonomics is an emerging field that investigates the brain in relation to behavioral performance in natural environments and everyday settings. Neuroergonomics research aims to expand our understanding of the neural mechanisms underlying human perceptual, cognitive, and motor functioning with a focus on real-world contexts.

The 2nd International Neuroergonomics Conference to be held at Drexel University, Philadelphia, PA USA, June 27-29, 2018. Neuroergonomics has witnessed extensive growth since its development a decade ago with the understanding of the brain at work and in everyday life. Following the success of the [inaugural Neuroergonomics conference](#) in Paris, the time is right to take stock of the achievements of neuroergonomics research, discuss key questions and develop new ideas for the future. This is the purpose of the Neuroergonomics 2018 Conference.

Keynote Speakers:

Michael Posner, Professor Emeritus at the University of Oregon and Adjunct Professor at the Weill Medical College in New York (Sackler Institute)

Scott Makeig, Research Scientist & Director, Swartz Center for Computational Neuroscience (SCCN) Institute for Neural Computation (INC) University of California San Diego (UCSD)



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Optical Brain Monitoring in Natural Settings

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Functional Near-Infrared Spectroscopy (fNIRS) is an emerging brain activity monitoring technique that can measure localized cortical oxygenation changes. Due to its portable, safe and low-cost nature, fNIRS has become increasingly popular for functional neuroimaging studies. Recent generation of fNIRS sensors that we have built are miniaturized to the size of smart-phones, battery-operated and wireless. Hence, allowing participants to be completely mobile and untethered during the continuous recording of brain dynamics in more natural and minimally intrusive settings. fNIRS measures hemodynamic changes in the brain similar to functional magnetic resonance imaging (fMRI), but limited to outer cortex and with lower spatial resolution. However, unlike it, fNIRS is quiet (no operating sound), provides higher temporal resolution and participants are not restricted to a confined space or are not required to lie down. These qualities pose fNIRS as an ideal candidate for potential clinical deployment in psychiatric settings including diagnostic, treatment assessment and complementary treatment applications.

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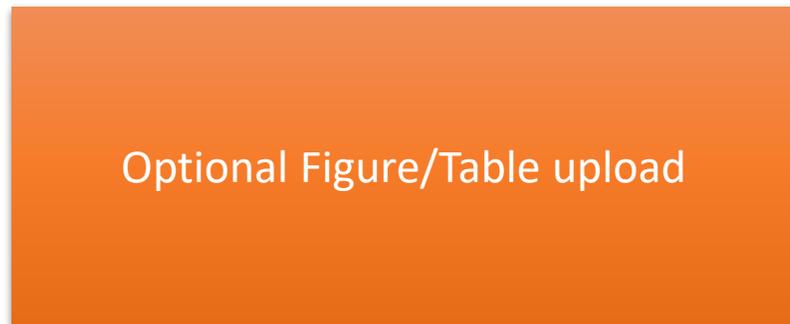
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Optical Brain Monitoring in Natural Settings

Hasan Ayaz¹

¹ School of Biomedical Engineering, Science and Health Systems, Drexel University, United States

Functional Near-Infrared Spectroscopy (fNIRS) is an emerging brain activity monitoring technique that can measure localized cortical oxygenation changes. Due to its portable, safe and low-cost nature, fNIRS has become increasingly popular for functional neuroimaging studies. Recent generation of fNIRS sensors that we have built are miniaturized to the size of smart-phones, battery-operated and wireless. Hence, allowing participants to be completely mobile and untethered during the continuous recording of brain dynamics in more natural and minimally intrusive settings. fNIRS measures hemodynamic changes in the brain similar to functional magnetic resonance imaging (fMRI), but limited to outer cortex and with lower spatial resolution. However, unlike it, fNIRS is quiet (no operating sound), provides higher temporal resolution and participants are not restricted to a confined space or are not required to lie down. These qualities pose fNIRS as an ideal candidate for potential clinical deployment in psychiatric settings including diagnostic, treatment assessment and complementary treatment applications.

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Keywords: Functional Near Infrared Spectroscopy (fNIRS), Brain computer interface (BCI), prefrontal cortex (PFC), working memory, cognitive workload

Conference: 2018 International Neuroergonomics Conference. Philadelphia, PA, United States, 27 Jun - 29 Jun, 2018.

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