

Team NeuroDynamics Example

Multi-subject Simultaneous EEG Acquisition

- Findings: [Modeling the Neurodynamic complexity of submarine navigation teams \(assessed synchronization of 6 individuals\)](#)
- Human Factors: [Cognitive Neurophysiologic Synchronies](#)

The Neuroscience of Leadership Project at ESADE Business School – Barcelona

- Video News Story: [The Neuroscience of Leadership Project](#) (YouTube; 5 min)
- Media Coverage: [Fortune Magazine - Tapping Brainwaves to Measure Business Sense - June 2015](#)
- Findings: [Emergent Leadership and Team Engagement - Findings from The Neuroscience of Leadership Project](#) - David Waldman (Arizona State University) and ABM demonstrate the B-Alert Cognitive State Metrics accurately predicting emergent leaders within groups. The paper was awarded the Best Paper Proceedings for the 2013 Academy of Management Meeting -- #1 in the Financial Times 45.
- Video Presentation: [Early Findings Presentation at ESADE Business Forum](#) (YouTube)
- Media Coverage: [Are You A Leader? Brainwaves Can Tell](#) - Discovery News
- ABM Webpage: [Team NeuroDynamics](#)

Accelerated Learning

Marksmanship, Archery, and Golf

- Key Publication: [International Journal of Sports and Society - Accelerating Training Using Interactive Neuro-educational Technologies](#)
- Media Coverage: [Discovery Science's Through the Wormhole with Morgan Freeman](#) (YouTube; 6 min)
- TEDx Talk: [A Window on the Brain: Chris Berka at TEDxSanDiego](#) - Chris Berka, CEO and Co-Founder of Advanced Brain Monitoring, provides insight into the company vision and recent findings enabled within DARPA's Accelerated Learning Program
- Cover Story: [Zen and the Art of Genius - New Scientist Magazine](#)
- Findings: [Characterizing the Psychophysiological Profile of Expert and Novice Marksmen](#)
- Findings: [Assessment of Rifle Marksmanship Skill Using Sensor-Based Measures](#)
- Findings: [Identifying psychophysiological indices of expert vs. novice performance in deadly force judgment and decision making](#)
- Follow-on Findings: [Modeling temporal sequences of cognitive state changes based on a combination of EEG-engagement, EEG-workload, and heart rate metrics](#)
- ABM Webpage: [Accelerated Learning](#)

Optimizing Surgeon Training

- Video Summary: [Cognitive Skills Assessment During Robot Assisted Surgery - Summary](#)
- Peer-review Publication: [BJUI - Cognitive Skills Assessment During Robot-Assisted Surgery - Separating Wheat from Chaff](#)
- Findings Poster: [Characterizing the Expertise and Proficiency of Surgeons Using EEG-based Metrics](#)
- Contact: Dr. Khashid Guru, Roswell Park Cancer Institute - ABM will be happy to introduce you to learn about his experience with B-Alert and first hand account of developing his methods.
- ABM Webpage: [Accelerated Learning](#)

Major League Baseball Batters

- Video: [Wall Street Journal - Using Science to Scout Hitters](#)
- News Story: [SB Nation - Take Me Out to the Brain Game](#)
- ABM Webpage: [Accelerated Learning](#)

Law Enforcement Officers

- Publication: [Identifying Psychophysiological Indices of Expert vs. Novice Performance in Deadly Force Judgment and Decision Making - Frontiers in Neuroscience](#)
- News Story: [Video](#) - Report: [Washington State University & Spokane Police Collaborate on Multi-year Research Project - KXLY Spokane News](#)
- Video: [Deadly Force Decision Making - DARPA supported study at Washington State Univ](#) (collaboration with ABM)
- Video: [TEDx Talk - "Tired Cops, Justice and Injustice" - Bryan Vila - Washington State University](#)
- Principal Investigator: Dr. Bryan Vila - [Research Gate Profile](#)
- ABM Webpage: [Accelerated Learning](#)

Brain Computer Interface

Neurorehabilitation

- Video News Story: [BBC Horizons profiles DARPA's Closed Loop Project](#) (YouTube HD; 6 min)
- Publication: [An Adaptive Brain Actuated System for Augmenting Rehabilitation - Frontiers in Neuroscience](#)
- Findings Poster: [Changes in Cortical Activation During BCI Use in Chronic Spinal Cord Injury](#)
- ABM Webpage: [Brain-Computer Interfaces](#)

Cortically Coupled Computer Vision

- Video News Story: [BBC Horizons profiles Neuromatters](#) (YouTube HD; 5 min)
- Publication: [In a Blink of an Eye and a Switch of a Transistor: Cortically Coupled Computer Vision - Proceedings of the IEEE](#)
- Principal Investigator: [Columbia University - Professor Paul Sadjia](#)
- ABM Webpage: [Brain-Computer Interfaces](#)

Consumer Neuroscience

Recent Media Coverage

- Introduction: [Coursera - Introduction to Neuromarketing](#) - Check out the 2 min intro video featuring B-Alert X10
- Presentation: [Dr. Thomas Ramsoy @ South X Southwest 2015 - The Cognitive Workload Metric serves as a measure for understanding how modern media communications are received by consumers](#)
- CBS News Story: [CBS 5 Phoenix - ASU iLux Lab Tracks Consumers' Thoughts, Feelings - May 2015](#)
- ABM Webpage: [Consumer Neuroscience](#)

EEG Biomarkers

Neurodegenerative Diseases

- Keynote Engagement: [Abbreviated \(90 seconds\) | Full-Length \(20 minutes\)](#) - Biogen's Dr. Ajay Verma highlights partnership with Advanced Brain Monitoring at StrataRX
- Findings Poster: [GTC Biomarkers - Development of EEG Biomarkers for Alzheimer's Disease](#) - Presented at GTC Biomarkers 2014
- Podcast: [CureTalk Radio - Wearable EEG in Clinical Trials: Now & Beyond - Featuring ABM CEO & Co-Founder Chris Berka with Biogen's Dr. Ajay Verma](#) (63 minutes)
- Press Release: [Development of EEG Biomarkers for Alzheimer's Disease](#)
- ABM Webpage: [EEG Biomarkers](#)

Psychiatric Indication – PTSD

- Findings Report: [Multi-modal Prediction of PTSD and Stress Indicators - 2014 IEEE International Conference on Acoustic, Speech and Signal Processing \(ICASSP\)](#)
- DARPA Findings Release: [DCAPS Information Pamphlet - PTSD](#) (Shilling, 2013)
- Conf Poster: [Detection & Computations Analysis of Psychological Signals \(DCAPS\) - DARPA I2O Demo Day](#)
- ABM Webpage: [EEG Biomarkers](#)

EEG-based Metrics

Predicting Fatigue Errors

- [UCSD Findings](#) (*Login Required*)

EEG @ 15,000 Ft.

- [EEG at 15,000 Feet](#) - This is a link to a power-point introduction on the study assessing the physiological impacts of live flight vs. simulated aviator training. Also included is a recent [findings report](#) as prepared by the research team at STISim.

Details on the development and accuracy

- Cognitive State Metrics
 - [Development of The B-Alert Cognitive State Metrics \(Engagement Classifications\) - BioPsy 2011](#)
 - [Real-Time Analysis of EEG Indexes of Alertness, Cognition, and Memory Acquired With a Wireless EEG Headset](#)
 - [EEG-derived Estimators of Present and Future Cognitive Performance \(Frontiers 2011\)](#)
- Cognitive Workload Metric
 - [Development of The Cognitive Workload Metric - ASEM 2007](#)
 - [Correlation between Expected Workload and EEG Indices](#)
- Info-graphics:
 - [Cognitive State and Cognitive Workload Metric Overview Slides](#)

Findings enabled by the Metrics from independent researchers:

- [Cognitive Skills Assessment During Robot-Assisted Surgery - Separating Wheat From Chaff](#)
- [EEG Estimates of Engagement and Cognitive Workload Predict Math Problem Solving \(Galan et al, 2012\)](#)
- [Cognitive State Assessment - Examination of EEG-Based Measures on a Stroop Task \(Sciarini et al, 2014\) - US Naval Postgraduate School](#)
- [Correlation between Expected Workload and EEG Indices of Cognitive Workload and Task Engagement - Augmented Cognition \(Login Required\)](#)
- [Modeling temporal sequences of cognitive state changes based on a combination of EEG-engagement, EEG-workload, and heart rate metrics](#)
- [EEG Estimates of Engagement and Cognitive Workload Predict Math Problem Solving \(Galan et al, 2012\)](#)

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Validation of the Cognitive Workload Metric

- Journal of Urology - [Cognitive Skills Assessment During Robot-Assisted Surgery - Separating Wheat From Chaff](#)
- Augmented Cognition - [Correlation between Expected Workload and EEG Indices of Cognitive Workload and Task Engagement \(Login Required\)](#)
- **Research led by Naval Post Graduate School** - [Cognitive State Assessment - Examination of EEG-Based Measures on a Stroop Task \(Sciarini et al, 2014\)](#)
- Look closely at Figure 3.2 - Attached - Objective Measures of Situational Awareness Using Neurophysiology Technology
- [Modeling temporal sequences of cognitive state changes based on a combination of EEG-engagement, EEG-workload, and heart rate metrics](#)
- [EEG Estimates of Engagement and Cognitive Workload Predict Math Problem Solving \(Galan et al, 2012\)](#)