NEUROERGONOMICS

2ND International

Neuroergonomics Conference

THE BRAIN AT WORK AND IN EVERYDAY LIFE

JUNE 27 – 29, 2018

Drexel University / Philadelphia, PA – USA

OUTLINE

	Day 0 Wed 6/27					Day 1 Thurs 6/28		Day 2 Fri 6/29		
7:00 AM						Breakfast, Registration & Poster Setup (7:15am-5pm)		Breakfast, Registration & Poster Setup (7:15am-5pm)		
7:30 AM										
8:00 AM						**1A** Aviation (8-10)	**1B** Everyday & Emerging (8-10)	**M3** Plenary Session 3 (8-9:30)		
8:30 AM	Breakfast & Registration (8:30am-4pm)									
9:00 AM										
9:30 AM	**W1** Workshop 1 - tCDS (9:30-4:30)	**W2** Workshop 2 - BCI (9:30-4:30)	**W3** Workshop 3 - Neuro-adaptive (9:30-4:30)	**W4** Workshop 4 - Wireless EEG (9:30-12)	**RT** RoundTable: Aerospace & Brain (9:30-12)			**P3** Poster Session & Coffee (9:30-10)		
10:00 AM						**P1** Poster Session & Coffee (10-10:30)		**3A** HCI + Human Performance (10-12)	**3B** Technology & Methodology (10-12)	**3C** Brain & Health I (10-12)
10:30 AM						**M1** Plenary Session 1 (10:30-12)				
11:00 AM										
11:30 AM										
12:00 PM	Lunch (12-1)					Lunch (12-1)		Lunch (12-1)		
12:30 PM					**SY** Symposium: Neuro-engineering (12:30-4:45)					
1:00 PM	**W1** Continued	**W2** Continued	**W3** Continued			**M2** Plenary Session 2 (1-3)		**M4** Plenary Session 4 (1-3)		
1:30 PM										
2:00 PM										
2:30 PM										
3:00 PM						**P2** Poster Session & Coffee (3-3:30)		**P4** Poster Session & Coffee (3-3:30)		
3:30 PM						**2A** Driving/Navigation (3:30-5:30)	**2B** Neuradaptive/BCI (3:30-5:30)	**4A** Autonomous Systems (3:30-5:30)	**4B** Training & Adaptation (3:30-5:30)	**4C** Brain & Health II (3:30-5:30)
4:00 PM										
4:30 PM										
5:00 PM	**M0** Greetings & Opening Keynote (5:15-6:30)							**M5** Panel Discussion and Closing Ceremony (5:45-6:15)		
5:30 PM										
6:00 PM										
6:30 PM	Networking Reception (6:30-9)					Dinner and Awards Ceremony (6:30-9)				
7:00 PM										
7:30 PM										
8:00 PM										
8:30 PM										

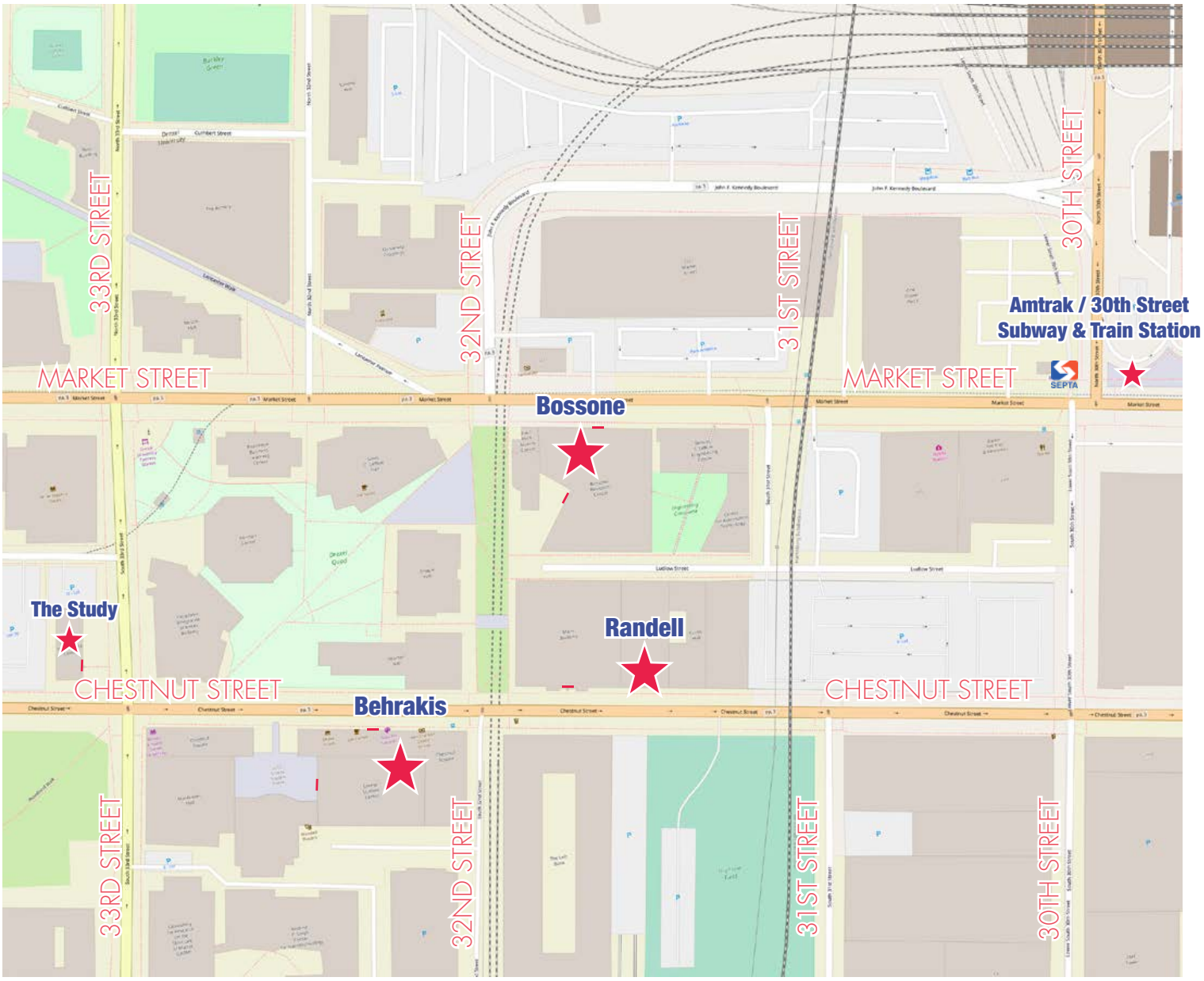
Wed 6/27 (Day 0)		Thurs 6/28 (Day 1)		Fri 6/29 (Day 2)	
Registration	Bossone 1st Floor Lobby	**Registration**	Bossone 1st Floor Lobby	**Registration**	Bossone 1st Floor Lobby
W1	Randell 114	**1A / 2A**	Bossone Mitchell Auditorium	**3A / 4A**	Bossone Mitchell Auditorium
W2	Bossone 302	**1B / 2B**	Behrakis Grand Hall 1	**3B / 4B**	Behrakis Grand Hall 1
W3	Randell 323	**Lunch P1 / P2**	Bossone 1st Floor Lobby	**3C / 4C**	Behrakis Grand Hall 2
W4	Bossone 709	**M1 / M2**	Bossone Mitchell Auditorium	**Lunch P3 / P4**	Bossone 1st Floor Lobby
RT	Bossone 705	**Dinner**	Behrakis Grand Hall	**M3 / M4 / M5**	Bossone Mitchell Auditorium
SY /Greetings / M0	Bossone Mitchell Auditorium				
Reception	Bossone 1st Floor Lobby				

NOTES

Wednesday 27th (Day 0): There will be 5 parallel activities (workshops, symposium and round table discussion sessions). Registration will be open.

On the evening of the 27th, the Greeting will start at 5:15pm and the Opening Keynote at 5:30pm will be followed by the Networking Reception.

MAP



Behrakis Grand Hall

Entrance is on Chestnut Street between 32nd & 33rd Streets next to Joe Coffee

Bossone Research Center

Entrance is on Market Street between 31st & 32nd Streets

Randell Hall (Main Building)

Entrance is on Chestnut Street between 31st & 32nd Streets

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CHAIRS' WELCOME

Dear Colleagues,

Neuroergonomics has witnessed extensive growth since Raja Parasuraman pioneered the field almost a decade ago with the aim to better understand the brain at work and in everyday life. We again gratefully dedicate this 2nd International Neuroergonomics Conference to his memory and legacy.

Following the success of the inaugural Neuroergonomics Conference in October 2016 in Paris, France, we are happy to welcome you to the 2018 International Neuroergonomics Conference at Drexel University. We hope that you will find the proceedings of this conference informative, thought-provoking and enlightening. We expect that you will extend your professional and friend networks, while also discovering Drexel University's unique history and mission that has remained alive since 1891. We also invite you to enjoy the many historical and cultural riches of Philadelphia, where the United States of America was born in 1776.

The International Neuroergonomics Conference series is a biennial event that alternates locations between Europe and the USA. This 2nd edition (2018 Philadelphia) builds on the inaugural conference (2016 Paris) and continues the mission to assemble multidisciplinary research domains and scientific communities focused on the understanding of the human brain and behavior in complex real-life contexts.

The Neuroergonomics 2018 Conference brings together stakeholders from varied and complementary fields of expertise, including scientists and researchers from universities, industry and government agencies, neuroscientists, psychologists, designers, practitioners, engineers, developers, architects, managers, and decision-makers to students and all interested learners.

We welcome all attendees to share new ideas, discoveries, research results, trends, and emerging and evolving application areas. The conference strives to discuss different methods, approaches and solutions that can be used to better understand the brain and body at work. The ultimate goal is to conceive, design and implement systems that are better adapted to the human information processing structures.

With deep appreciation for our sponsors and organizers who have selflessly devoted time, effort and resources to make Neuroergonomics 2018 a memorable event, we hope that the conference program provides you with a valuable opportunity to develop and share ideas with researchers and practitioners from institutions around the world.

Enjoy the conference, spread the word, make plans for many happy returns to Philadelphia and join us when we meet next in Europe!

Hasan Ayaz
Co-chair
School of Biomedical Engineering,
Science and Health Systems,
Drexel University,
Philadelphia, PA, USA

Frédéric Dehais
Co-chair
Institut Supérieur de l'Aéronautique
et de l'Espace-SUPAERO,
Université de Toulouse,
Toulouse, France

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CONFERENCE CO-CHAIRS

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Frédéric Dehais

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Carryl Baldwin
Daniel Callan
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Erin Solovey
Martin Spüler
Chad Stephens
Christian Wallraven
Matthias Ziegler

PROGRAM AT A GLANCE

DAY 0: WEDNESDAY, JUNE 27, 2018

8:30 AM **Breakfast and Registration Open**
Bossone 1st Floor Lobby

9:30 AM – 4:30 PM

W1. Workshop 1: Transcranial Direct Current Stimulation (tDCS): Advanced Theory and Hands-on Workshop
Marom Bikson et al.
Randell 114

W2. Workshop 2: Neuroadaptive Technologies and BCI+
Thorsten Zander et al.
Bossone 302

W3. Workshop 3: Brain-Computer Interface Workshop for Control, Assessment and Rehabilitation
Christoph Guger et al.
Randell 323

W4. Workshop 4: Wireless Stimulus Delivery for Mobile EEG/ERP Experiments
Ends at 12 noon
Ivan Gligorijević et al.
Bossone 709

9:30 AM –12:00 PM **RT. Round Table: Aerospace & Neuroscience: Brain in Extreme Settings**
Chairs: Frédéric Dehais and Daniel Callan
Bossone 705

12:00 PM – 1:00 PM **Lunch**
Bossone 1st Floor Lobby

12:30 PM – 4:45 PM **SY. Symposium: Neuroengineering: Probing and Rewiring Neural Circuits**
Chair: Catherine von Reyn
Bossone Mitchell Auditorium

5:15 PM – 6:30 PM **M0. Opening Keynote**
Chair: Paul Brandt-Rauf
Bossone Mitchell Auditorium

1 Welcoming Remarks
Dean Paul Brandt-Rauf, Hasan Ayaz and Frédéric Dehais

2 **Keynote I: Rewiring the Brains of Mice and People**
Michael I. Posner

6:30 PM – 9:00 PM **Networking Reception**
Bossone 1st Floor Lobby

PROGRAM AT A GLANCE

DAY 1: THURSDAY, JUNE 28, 2018

7:15 AM **Breakfast and Registration Open**
Bossone 1st Floor Lobby

8:00 AM – 10:00 AM **Parallel Session**
1A. Aviation
Chair: Frédéric Dehais
Bossone Mitchell Auditorium

Parallel Session
1B. Everyday & Emerging Applications
Chair: Roy Hamilton
Behrakis Grand Hall 1

10:00 AM – 10:30 AM **P1. Poster Session 1 + Coffee Break**
Bossone 1st Floor Lobby

10:30 AM – 12:00 PM **M1. Plenary Session 1**
Chair: Banu Onaral
Bossone Mitchell Auditorium

1 Greetings and Remarks
Provost Brian Blake

2 **Keynote II: Mobile Brain/Body Imaging: A Decade of Emergence**
Scott Makeig

3 Achieving Human Computer Symbiosis: A Practitioners Perspective and Recommendations on Achieving Effective Human-Systems Integration by Augmenting Cognition
Dylan Schmorrow

4 Panel: Brain Technologies and Defense: Past present and future
Banu Onaral, Dylan Schmorrow, Bartlett A. Russell and Ewart de Visser

12:00 PM – 1:00 PM **Lunch**
Bossone 1st Floor Lobby

1:00 PM – 3:00 PM **M2. Plenary Session 2**
Chair: Klaus Gramann
Bossone Mitchell Auditorium

1 Functional Near-infrared Spectroscopy as Natural and Flexible Extension of Conventional Neuroimaging Methods: Applications in Neuropharmacological and Neuromarketing Studies
Ippeita Dan

2 Symbiotic Brain-Machine Interaction: Beyond Control and Monitoring
Ricardo Chavarriaga

3 Neuromodulation Technology for Neuroergonomics
Marom Bikson

4 Mobile Brain/Body Imaging (MoBI) in Neuroergonomics
Klaus Gramann

3:00 PM – 3:30 PM **P2. Poster Session 2 + Coffee Break**
Bossone 1st Floor Lobby

3:30 PM – 5:30 PM **Parallel Session**
2A. Driving/Navigation
Chair: Lewis Chuang
Bossone Mitchell Auditorium

Parallel Session
2B. Neuroadaptive/BCI
Chair: Thorsten Zander
Behrakis Grand Hall 1

6:30 PM – 9:00 PM **Dinner and Awards Ceremony**
Behrakis Grand Hall

PROGRAM AT A GLANCE

DAY 2: FRIDAY, JUNE 29, 2018

7:15 AM **Breakfast and Registration Open**
Bossone 1st Floor Lobby

8:00 AM – 9:30 AM **M3. Plenary Session 3**
Chair: Kenneth Barbee
Bossone Mitchell Auditorium

1 Cosmetic Neurology: Ethical Considerations and Public Attitudes
Anjan Chatterjee

2 **Keynote III: Networks that Learn, and the Networks They Learn**
Danielle Bassett

9:30 AM – 10:00 AM **P3. Poster Session 3 + Coffee Break**
Bossone 1st Floor Lobby

10:00 AM – 12:00 PM

Parallel Session 3A. HCI & Human Performance
Chair: Daniel Callan
Bossone Mitchell Auditorium

Parallel Session 3B. Technology/Methodology
Chair: Steven Fairclough
Behrakis Grand Hall 1

Parallel Session 3C. Brain & Health I
Chair: Kristy Arbogast
Behrakis Grand Hall 2

12:00 PM – 1:00 PM **Lunch**
Bossone 1st Floor Lobby

1:00 PM – 3:00 PM **M4. Plenary Session 4**
Chairs: Keith Orris and Banu Onaral
Bossone Mitchell Auditorium

1 We wanted flying cars, instead we're getting telepathy: the new boom in neurotechnologies
Sid Kouider

2 Panel: Industry Perspective: Current and Future Directions
Representatives from Northrop Grumman, Lockheed Martin, BAE Systems, Charles River Analytics, Design Interactive, CHOP and more

3:00 PM – 3:30 PM **P4. Poster Session 4 + Coffee Break**
Bossone 1st Floor Lobby

3:30 PM – 5:30 PM

Parallel Session 4A. Autonomous Systems
Chair: Carryl Baldwin
Bossone Mitchell Auditorium

Parallel Session 4B. Training & Adaptation
Chair: Ryan McKendrick
Behrakis Grand Hall 1

Parallel Session 4C. Brain& Health II
Chair: Keum-Shik Hong
Behrakis Grand Hall 2

5:45 PM – 6:15 PM **M5. Closing Ceremony: Epilogue Panel and Farewell Remarks**
Chairs: Hasan Ayaz and Frédéric Dehais
Bossone Mitchell Auditorium

KEYNOTE SPEAKERS

MICHAEL POSNER

Keynote I: Rewiring the Brains of Mice and People

Plenary Session M0: Wednesday June 27th at 5:15pm

Professor Emeritus at the University of Oregon, United States

Abstract: Raja Parasuraman was a world leader in the study of attention and in its application to improving the work lives of people and the brains of the elderly. Our current work continues this effort. The studies began with our finding that two weeks to a month of meditation training could improve white matter surrounding the anterior cingulate. How could a purely mental activity give rise to these physical changes? We hypothesized that the frontal theta induced by meditation training activates dormant oligodendrocytes and lead to changes in connectivity. We have used a mouse model to test this hypothesis and are now attempting to use the insights gained to induce changes in the human brain. I will report our findings to date and discuss our goals for the future.

SCOTT MAKEIG

Keynote II: Mobile Brain/Body Imaging: A Decade of Emergence

Plenary Session M1: Thursday June 28th at 10:30am

Swartz Center for Computational Neuroscience, Institute for Neural Computation, University of California, San Diego, United States

Abstract: A decade ago, my colleague Howard Poizner approached me with the idea to record EEG during a behavioral reaching experiment, the wider possibilities of functional EEG imaging dawned on me only slowly. The independent component analysis (ICA) method that we were pioneering, originally at Terry Sejnowski's lab at the Salk Institute and then at our UCSD Swartz Center for Computational Neuroscience, could separate out the profuse contributions to scalp EEG from eye movements and neck muscle activities during natural movements. Today, ICA-based EEG imaging is helping reveal dynamics of cortical networks involved in motor planning and evaluation, processes that are near-continually active during what Klaus Gramann later dubbed our natural cognition. By limiting participants to lying rigidly in an fMRI, PET, or MEG scanner or staring at an EEG experiment screen fixation point, we will not reveal the brain's repertoire of cortical dynamics that supports the human agency, a root aspect of human consciousness. These ideas seemed so scientifically important that a new research direction deserved a name that might inspire and focus research interest in how cortical network dynamics support our everyday living: mobile brain/body imaging (MoBI). My talk will explore emerging brain studies on our natural embodied cognition and how new high-resolution EEG methods can fulfill the promise of those first pilot experiments, a decade ago, which involved participants seated in darkness and attempting to reach out to touch briefly illuminated points of light.

DANIELLE BASSETT

Keynote III: Networks that Learn, and the Networks They Learn

Plenary Session M3: Friday June 29th at 8:45am

Eduardo D. Glandt Faculty Fellow and Associate Professor of Bioengineering, University of Pennsylvania, United States

Abstract: In this talk, I will describe efforts to understand how human brain network architecture supports learning. As a concrete example, I will focus on motor sequence learning, and synthesize results across multiple non-invasive neuroimaging modalities and different studies to pinpoint the network markers of learning, and accurate predictors of future learning. This synthesis will motivate questions related to how cognitive control supports (or hinders) learning, thereby leading to a discussion of the potential utility of reframing notions of cognitive control as network control. In the second part of the talk, I will ask questions about how humans learn complex patterns in relational data. I will formalize these questions within the mathematical language of graph theory, and describe recent empirical studies probing whether and how humans learn mesoscale structure in these patterns and which sorts of networks humans learn best.

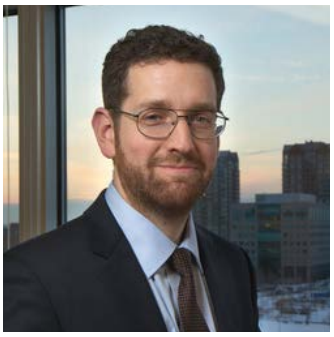
INVITED SPEAKERS

Carryl Baldwin

Director, Human Factors and Applied Cognition Program,

Associate Professor,

Department of Psychology, George Mason University, Fairfax, VA, USA



Marom Bikson

Professor,

Department of Biomedical Engineering, The City College of New York, New York, NY, USA

Daniel Callan

Principle Investigator,

Center for Information and Neural Networks, National Institute of Information and Communications Technology, Osaka University, Osaka, Japan

Anjan Chatterjee

Elliott Professor of Neurology and Chief of Service,

Department of Neurology, Pennsylvania Hospital, School of Medicine, University of Pennsylvania, PA, USA

Ricardo Chavarriaga

Research Scientist, Defitech Foundation Chair in Brain-machine Interface,

School of Engineering, Ecole Polytechnique Fédérale de Lausanne EPFL, Lausanne, Switzerland

Lewis Chuang

Group Leader,

Max Planck Institute for Biological Cybernetics, Tubingen, Germany

Ippeita Dan

Professor,

Institute of Science and Engineering, Chuo University, Tokyo, Japan

Frédéric Dehais

Professor,

Institut Supérieur de l'Aéronautique et de l'Espace (ISAE), Toulouse, France

INVITED SPEAKERS

Klaus Gramann

Professor,

Department of Psychology and Ergonomics, Chair Biological Psychology and Neuroergonomics, Technische Universität Berlin, Berlin, Germany

Roy Hamilton

Director, Laboratory for Cognition and Neural Stimulation,

Associate Professor,

Departments of Neurology and Physical Medicine and Rehabilitation, University of Pennsylvania, Philadelphia, PA, USA

Sid Kouider

Research Director,

Laboratoire de Sciences Cognitives et Psycholinguistique, Ecole Normale Supèrieure, Paris, France

Dylan Schmorrow

Chief Scientist and Executive Vice President

Soar Technology, Inc., VA, USA

Thorsten Zander

Leader of Team PhyPA,

Department of Biological Psychology and Neuroergonomics, Technische Universität Berlin, Berlin, Germany

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DAY 0: WEDNESDAY, JUNE 27, 2018

9:30 AM – 4:30 PM	**W1. Workshop 1: Transcranial Direct Current Stimulation (tDCS): Advanced Theory and Workshop** *Chair: Marom Bikson et al.* *Location: Randell 114*	
	1	Introduction: Transcranial Direct Current Stimulation (tDCS) *Adam J. Woods, Helena Knotova, Marom Bikson*
	2	Principles and Mechanisms + Targeted Outcomes *Adam J. Woods*
	3	Stimulation Parameters and Protocols + Electrodes / Montages *Adam J. Woods, Helena Knotkova, Marom Bikson*
	4	tDCS Safety *Adam J. Woods*
	5	Hands-on with tDCS *Adam J Woods, Helena Knotkova, Marom Bikson*
	6	Professional Standards and Recap *Helena Knotkova*
9:30 AM – 4:30 PM	**W2. Workshop 2: Neuroadaptive Technologies and BCI+** *Chair: Thorsten Zander et al.* *Location: Bossone 302*	
	1	Introduction: Neuroadaptive Technology and BCI+ – Scientific Overview *Thorsten O. Zander*
	2	A BCI-Framework: LSL, BCI-Toolboxes and Hardware *David E. Medine*
	3	Break and Discussion
	4	Hands-on: Hardware
	5	Live Experiment: Neuroadaptive Game (w/ EEG, Eye-Tracking and implicit control) *Laurens R. Krol*
9:30 AM – 4:30 PM	**W3. Workshop 3: Brain-Computer Interface Workshop for Control, Assessment and Rehabilitation** *Chair: Christoph Guger et al.* *Location: Randell 323*	
	1	Introduction: non-invasive/invasive brain-computer interface systems, including current and future applications *Christoph Guger, Slav Dimov*
	2	The advantages of wireless, active dry and wet technology for BCI applications
	3	Invasive ECoG recording and real-time analysis for avatar control
	4	Cognitive assessment, motor rehabilitation, and communication with brain-computer interface technology
	5	BCI technology in combination with brain stimulation and peripheral stimulation technology
	6	Hands-on demos of BCI technology
9:30 AM – 12:00 PM	**W4. Workshop 4: Wireless Stimulus Delivery for Mobile EEG/ERP Experiments** *Chair: Ivan Gligorijević et al.* *Location: Bossone 709*	
	1	Introduction: Wireless EEG in Neuroergonomics Studies *Ivan Gligorijević, Pavle Mijović*
	2	Synchronous Multimodal Studies for Neuroergonomics Studies – Short Introduction to the Lab Streaming Layer (LSL) Protocol
	3	Wireless Stimulus Delivery for the EEG experiments
	4	Hands-on Demo: Performing an ERP Experiment and an ERP Experiment in a VR-like Environment
	5	Real-time Applications Demo with Workshop Participants

PROGRAM

DAY 0: WEDNESDAY, JUNE 27, 2018

9:30 AM – 12:00 PM	**RT. Round Table: Aerospace & Neuroscience: Brain in Extreme Settings** *Chair: Frédéric Dehais & Daniel Callan*	*Location: Bossone 705*
1	Suborbital Spaceflight Vehicle Analysis for Single Pilot Operations *Scott Glaser*	
2	The Effects of Automation on Human Performance in High-Risk Environments: A Design Research Case Study on Cockpit Automation in Commercial Aircrafts in Israel *Avner Y. Bendheim*	
3	Physiological Sensing for attention management in commercial aviation *Angela R. Harrivel*	
4	Neuroscience and Autonomy: Research Challenges and Opportunities *Justin Estepp*	
12:30 PM – 4:45 PM	**SY. Symposium: Neuroengineering: Probing and Rewiring Neural Circuits** *Chair: Catherine von Reyn*	*Location: Bossone Mitchell Auditorium*
1	Engineering 3D Neural Circuit Structure and Function *Yevgeny Berdichevsky*	
2	Neuroregeneration, May the Force be with You! *Yuanquan Song*	
3	Enhancing and directing cortical and spinal plasticity: lessons from the rodent model of Spinal Cord Injury *Simon Giszter*	
4	Living Tissue Engineered Brain Pathways to Restore the Connectome *Kacy Cullen*	
5	Chemigenetic Indicators of Neuronal Activity *Eric Schreiter*	
6	Miniscope.org: An open-source imaging platform focused on developing the next generation of miniature fluorescence microscopes *Daniel Aharoni*	
7	Cell type-specific investigation of reward system function *William Stauffer*	
8	Intracortical brain-computer interfaces *Mijail Serruya*	
5:15 PM – 6:30 PM	**M0. Opening Keynote: Rewiring the Brains of Mice and People – Michael I. Posner** *Chair: Dean Paul Brandt-Rauf*	*Location: Bossone Mitchell Auditorium*
1	Welcoming Remarks *Paul Brandt-Rauf, Hasan Ayaz and Frédéric Dehais*	
2	**Keynote I: Rewiring the Brains of Mice and People** *Michael I. Posner*	
6:30 PM – 9:00 PM	**Networking Reception**	*Location: Bossone 1st Floor Lobby*

DAY 1: THURSDAY, JUNE 28, 2018

8:00 AM – 10:00 AM **Parallel Session**
1A. Aviation
Chair: Frédéric Dehais *Location: Bossone Mitchell Auditorium*

1. **Traffic Pattern Analysis in a Flight Simulator: Subjective and Physiological Mental Workload Assessment Techniques**
   Raphaëlle N. Roy, Benjamin Winkler, Fabian Honecker, Sébastien Scannella, Frédéric Dehais and Axel Schulte
2. **Grasping the world from a cockpit: investigating embodied neural mechanisms underlying human performance and ergonomics in aviation context**
   Mariateresa Sestito, Jeff Nador, John Flach and Assaf Harel
3. **Restricted field of view during training impacts gaze strategy for aircraft handling**
   Jonas Walter and Lewis L. Chuang
4. **Monitoring auditory attention with a 6 dry-electrode EEG system in real flight conditions**
   Frédéric Dehais, Alban Duprès, Sébastien Scannella, Fabien Lotte and Raphaëlle N. Roy
5. **Giving A Hand To Pilots With Animated Alarms Based On Mirror System Functioning**
   Emilie S. Jahanpour, Eve F. Fabre, Frédéric Dehais and Mickael Causse
6. **Functional network activity mediating the shift of attentional resources during inattentional deafness in an aviation pursuit task**
   Robert J. Gougelet, Cengiz Terzibas, Bradley Voytek and Daniel Callan
7. **How pilot role assignment influences decision-making under uncertainty: a behavioural and eye-tracking study**
   Julia Behrend and Frédéric Dehais

8:00 AM – 10:00 AM **Parallel Session**
1B. Everyday & Emerging Applications
Chair: Roy Hamilton *Location: Behrakis Grand Hall*

1. **Cognitive Enhancement with Transcranial Direct Current Stimulation: Support, Skepticism, and Steps Forward**
   Roy H. Hamilton
2. **Augmentation of Everyday Problem Solving Abilities Using Transcranial Electric Stimulation**
   Evangelia G. Chrysikou
3. **Response to scene transitions in films based on establishing shot type**
   Grant M. Brighter
4. **Quality of frequency-following response to speech sounds linked with left prefrontal hemodynamic activity using fNIRS+EEG**
   Benjamin D. Zinszer, Todd A. Hay, Alex Athey and Bharath Chandrasekaran
5. **Identifying the neural signature of thermic comfort sensation: neuroergonomic evaluation of a new ventilating system integrated in car seat**
   Audrey Breton, Vincenzo Ronca, Anne Isabelle Mallet-Dacosta, Florent Longatte, Romaric Servajean-Hilst and Yohan Attal
6. **Building a Cognitive Profile with a Non-Intrusive Sensor: How Speech and Sounds Map onto our Cognitive Worlds**
   Gabriel J. Collins, Jason Poleski, Matthias R. Mehl, Allison Tackman, Ramon A. Reyes, Amanda E. Kraft, Jon C. Russo, Dylan E. Kenny, Peter B. Bryan, Edwin A. Simons and William D. Casebeer
7. **Improving real-life, heart rate based estimates of emotion by taking metabolic heart rate into account – a perspective and an example in cooking**
   Anne-Marie Brouwer, Maarten A. Hogervorst, Jan B. Van Erp, Elsbeth van Dam, Justin R. Brooks, Marc Grootjen and Elisabeth H. Zandstra

DAY 1: THURSDAY, JUNE 28, 2018

10:00 AM – 10:30 AM	**P1. Poster Session 1 + Coffee Break**	*Location: Bossone 1st Floor Lobby*
Poster Location: 1	Developing a Cognitive Battery for Top-Down Workload Assessment	*Amanda E. Kraft, Matthias D. Ziegler, Sophia Mayne-DeLuca, Trevor Sands, Alison M. Perez, Jesse Mark, Adrian Curtin, Amanda Sargent, Hasan Ayaz and William D. Casebeer*
3	fNIRS Differentiates Cognitive Workload Between Concussed Adolescents and Healthy Controls	*Hasan Ayaz, Kristy Arbogast, Fairuz Mohammed, Ronni Kessler, Lei Wang, Eileen Storey, Olivia Podolak, Matthew Grady, Andrew R. Mayer, Catherine McDonald and Christina L. Master*
5	MetaNIRS: A Relational Database for the Categorization, Organization and Meta-Analysis of Optical Functional Neuroimaging Research	*Jan L. Watson, Adrian Curtin and Hasan Ayaz*
7	fNIRS reveals right hemisphere dorsolateral prefrontal cortex activation during use of a cosmetic product subjected to willingness to pay test	*Keith Kawabata Duncan, Tatsuya Tokuda, Chiho Sato, Keiko Tagai and Ippeita Dan*
9	Your memory on smartphone: Subsequent Memory Effect captured with smartphone EEG	*Nadine Jacobsen, María Piñeyro Salvidegoitia and Stefan Debener*
11	There's a brain behind the wheel: a meta-analysis of neuroimaging studies of car driving in simulated environments	*Emanuelle Reynaud, François Osiurak and Jordan Navarro*
13	Determination of cognitive workload variation in driving from ECG derived respiratory signal and heart rate	*Antonio R. Hidalgo-Muñoz, Adolphe J. Béquet, Mathis Astier-Juvenon, Guillaume Pépin, Alexandra Fort, Christophe Jallais, Hélène Tattegrain and Catherine Gabaude*
15	Discourse Formulation and Neurovascular Activation in Four Genres	*Michael S. Cannizzaro and Shaun Stephens*
17	Monitoring reading behaviour: examining eye metrics during processing of information with different levels of relevance	*Charlotte Clarijs, Wieke Oldenhof and Anne-Marie Brouwer*
19	An alternative method to group analysis of fNIRS signals from ecological experiments: An application to an emotional music induced experiment	*Cândida D. Barreto, Patricia M. Vanzella and Joao R. Sato*
21	Using Deep Convolutional Neural Networks to Develop the Next Generation of Sensors for Interpreting Real World EEG Signals Part 2: Developing Sensors for Vigilance Detection	*Jonathan McDaniel, Amelia Solon, Vernon Lawhern, Jason Metcalfe, Amar Marathe and Stephen Gordon*
23	The Phase of Spontaneous Pre-stimulus EEG Oscillations Predicts Auditory Pattern Identification	*Natalie E. Hansen, Matthew G. Wisniewski, Nandini Iyer, Brian D. Simpson and Assaf Harel*
25	Comparison of Behavioral and Cerebral Hemodynamic Responses to Standing and Walking Conditions: A Pilot Study	*Yeonhak Jung, Brett Baker, Dakota Skinner, Preeti Chopra, Benjamin Zinszer and Darla M. Castelli*
27	The validity of the Oculus Rift to assess postural changes during a balance task	*Jonathan D. Marchetto and W. G. Wright*
29	Evaluating and Modeling Human-Machine Teaming and Trust in Automation while on the Road	*Nathan Tenhundfeld, Ewart de Visser, Chad Tossell and Victor Finomore*
31	MazeSuite 3: A design, presentation and analysis platform for spatial navigation, cognitive neuroscience and neuroengineering applications	*Adrian Curtin and Hasan Ayaz*

DAY 1: THURSDAY, JUNE 28, 2018

10:30 AM – 12:00 PM	**M1. Plenary Session 1** *Chair: Banu Onaral*	*Location: Bossone Mitchell Auditorium*
1	Greetings and Remarks *Provost Brian Blake*	
2	**Keynote II: Mobile Brain/Body Imaging: A Decade of Emergence** *Scott Makeig*	
3	Achieving Human Computer Symbiosis: A Practitioner's Perspective and Recommendations on Achieving Effective Human-Systems Integration by Augmenting Cognition *Dylan Schmorrow*	
4	Panel: Brain Technologies and Defense: Past, Present and Future *Banu Onaral, Dylan Schmorrow, Bartlett A. Russell and Ewart de Visser*	
1:00 PM – 3:00 PM	**M2. Plenary Session 2** *Chair: Klaus Gramann*	*Location: Bossone Mitchell Auditorium*
1	Functional Near-infrared Spectroscopy as Natural and Flexible Extension of Conventional Neuroimaging Methods: Applications in Neuropharmacological and Neuromarketing Studies *Ippeita Dan*	
2	Symbiotic Brain-Machine Interaction: Beyond Control and Monitoring *Ricardo Chavarriaga*	
3	Neuromodulation Technology for Neuroergonomics *Marom Bikson*	
4	Mobile Brain/Body Imaging (MoBI) in Neuroergonomics *Klaus Gramann*	
3:00 PM – 3:30 PM	**P2. Poster Session 2 + Coffee Break**	*Location: Bossone 1st Floor Lobby*
Poster Location: 2	Visual Fidelity in Simulation-Based Training for Aviation: Behavioral and Neuroimaging Research	*Nina Rothstein*
4	ERP variation may be negatively correlated with P300 speller performance	*Kyungho Won, Moonyoung Kwon, Sunghan Lee, Sehyeon Jang, Jongmin Lee, Minkyu Ahn and Sung Chan Jun*
6	Neuroergonomic Evaluation, Using Mobile fNIRS and Real-World Cognitive Task, Reveal Differences in Adolescents With Mild Traumatic Brain Injury (mTBI) Within an Expected Time Window of Recovery	*Noah Sideman, Amanda Sargent, Christine J. Hammond, Denah Appelt, Brian J. Balin, Sarah Levin Allen and Hasan Ayaz*
8	Neural Correlates of Adolescent Depression and Suicide: an fNIRS Study	*Amanda Sargent, Corey Fedorowich, Guy Diamond and Hasan Ayaz*
10	Neuroergonomic Analysis of Dynamic Vs. Flat Rate Pricing on Consumers	*Hongjun Ye, Siddharth Bhatt, Hasan Ayaz, Prashant Srivastava and Rajneesh Suri*
12	Predicting response latency using EEG alpha-band power and low-cost wearable physiological sensors	*Dean Cisler, Pamela M. Greenwood, Ryan McKendrick and Carryl L. Baldwin*
14	How Good is the Wealth Management Portal? User Performance on the Portal as a Usability Metric	*Siddharth Bhatt, Atahan Agrali, Hasan Ayaz and Rajneesh Suri*
16	Investigating the Impact of Assistive Technologies on Working Memory Load in Manual Assembly through Electroencephalography	*Thomas Kosch and Lewis L. Chuang*
18	EEG & Eye-Tracking Changes With Expertise In A Multi-Vehicle Control Task	*Assaf Harel, Olivia M. Fox, Natalie Hansen, Brad Galego, Matthew Pava and Bartlett Russell*
20	Quantitative evaluation of functional Near Infrared Spectroscopy measurements with different source-detector separations using Monte Carlo simulation	*Lei Wang, Meltem Izzetoglu and Hasan Ayaz*

DAY 1: THURSDAY, JUNE 28, 2018

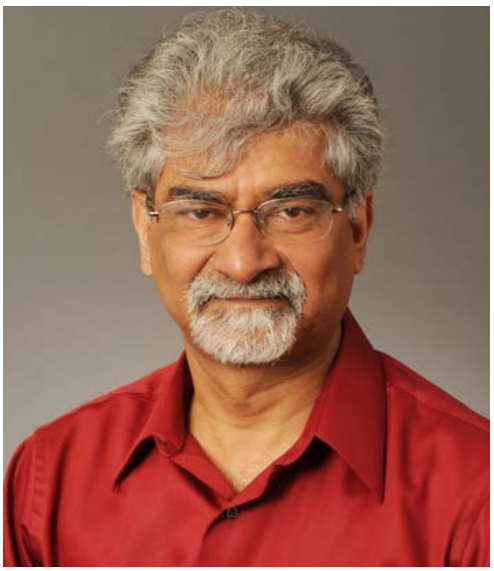
3:00 PM – 3:30 PM	**P2. Poster Session 2 + Coffee Break**	*Location: Bossone 1st Floor Lobby*
Poster Location: 22	Investigate the effect of HD-tDCS on the prefrontal cortex using fNIRS for neurorehabilitation	*M. Atif Yaqub, Seong-Woo Woo, Amad Zafar and Keum-Shik Hong*
24	Prefrontal Cortical Activation, but Not Behavioral Performance of Impulsivity and Risky Decision-Making Tasks, was Associated with Treatment Outcome in Residential Patients with Alcohol or Prescription Opioid Use Disorder.	*Sarah E. Tilden, Jonathan Harris, Andrew Huhn, Erin Deneke, Jessica Parascando, Roger Meyer, Edward Bixler, Hasan Ayaz and Scott Bunce*
26	Testing The Sycopaero System Using NeuroErgonomics: A New Operational Support System in Case of Speed Failure	*Eve F. Fabre, Christophe Lounis, Patrick Braca and Frédéric Dehais*
28	Assessment of Astronauts' Workload with Task-Irrelevant Auditory Probes In Manually Controlled Spacecraft Rendezvous and Docking	*Arnaud Prost, Vsevolod Peysakhovich*, Ilyas K. Igraleev, Alexey S. Tyaglik, Frédéric Dehais and Alexander V. Efremov*
30	Aerobic Exercise Effects on Cognition: A Functional Near Infrared Spectroscopy Systematic Review	*Melanie N. French, Felipe Fregni and Eunice Y. Chen*
32	Tracking the effect of a new massage system integrated in automotive seat on relaxation feeling: an electrophysiological study	*Audrey Breton, Vincenzo Ronca, Samuel Baudu, Emmanuelle Brunet, Romaric Servajean-Hilst, Thibaud Dumas and Yohan Attal*

3:30 PM – 5:30 PM	**Parallel Session** **2A. Driving/Navigation** *Chair: Lewis Chuang*	*Location: Bossone Mitchell Auditorium*
1	A potential for distraction: Using task-irrelevant complex environment sounds to probe closed-loop control demands *Lewis L. Chuang*	
2	Neuropsychological Markers for Safe Driving in Healthy Middle-Aged Drivers *Jose L. Carrion*	
3	Magnetoencephalogram recording during simulated driving: Towards an ecologically-valid paradigm *Elizabeth A. Walshe, William C. Gaetz, Daniel Romer, Timothy Roberts and Flaura K. Winston*	
4	Demonstrating brain-level interactions between working memory load and driving demand level using fNIRS *Jochem W. Rieger, Jakob Scheunemann, Klas Ihme, Frank Köster, Meike Jipp and Anirudh Unni*	
5	What can eye-movements analyses tell us about driving behaviors? *Jordan Navarro and Emanuelle Reynaud*	
6	Demonstrating brain-level interactions between working memory load and frustration while driving using functional near-infrared spectroscopy *Anirudh Unni*, Benedikt Kretzmeyer, Klas Ihme, Frank Koester, Meike Jipp and Jochem W. Rieger*	
7	Uncovering the temporal dynamics of scene understanding using Event-Related Potentials *Assaf Harel*	

DAY 1: THURSDAY, JUNE 28, 2018

3:30 PM – 5:30 PM	**Parallel Session** **2B. Neuroadaptive/BCI** *Chair: Thorsten O. Zander*	*Location: Behrakis Grand Hall*
1	**Neuroadaptive Technology and its use in BCI** *Thorsten O. Zander*	
2	**Predicting head rotation using EEG to enhance streaming of images to a Virtual Reality headset** *Anne-Marie Brouwer, Jasper van der Waa and Hans Stokking*	
3	**Cognitive and Affective Probing for Neuroergonomics** *Laurens R. Krol and Thorsten O. Zander*	
4	**Assessment of Top-Down Attention for a Closed-Loop Performance Enhancement System Using High-Frequency Steady-State Visually Evoked Potentials and Eye Tracking** *Matthew J. Pava, Walker C. Alexander,Gabriel J. Collins, Brad J. Galego, Jon C. Russo, Assaf Harel, Olivia M. Fox, Natalie E. Hansen and Bartlett A. Russell*	
5	**EEG-based neural correlates of ACT-R model for multitasking** *Nayoung Kim, Erica McCune, MyungHwan Yun and Chang S. Nam*	
6	**Towards a hybrid passive BCI for the modulation of sustained attention using EEG and fNIRS** *Alexander J. Karran, Theophile Demazure, Pierre-Majorique Léger, Elise Labonte-LeMoyne, Sylvain Sénécal, Marc Fredette and Gilbert Babin*	
7	**Assessing neuroelectrical markers of emotional appraisal during the interaction with adaptive user interfaces** *Feroze T. Malik, Kathrin Pollmann, Matthias Peissner and Mathias Vukelić*	
8	**Towards Neuroadaptive Personal Learning Environments: Using fNIRS to Detect Changes in Attentional State** *Leah Friedman, Ruixue Liu, Aria Kim, Erin Walker and Erin Solovey*	
6:30 PM – 9:00 PM	**Dinner and Awards Ceremony**	*Location: Behrakis Grand Hall*

2018 PARASURAMAN AWARDS



Professor Raja Parasuraman
Father of Neuroergonomics

Raja Parasuraman's pioneering work led the emergence of Neuroergonomics as a new scientific field. He made significant contributions to a number of disciplines from human factors to cognitive neuroscience. His early work included important contributions to topics such as vigilance and human interaction with automated systems. He later consolidated his interests in human factors and cognitive neuroscience to develop a new discipline called Neuroergonomics, which he defined as the study of brain and behavior at work. This conference is dedicated to Professor Raja Parasuraman who unexpectedly passed on March 22nd, 2015.

To honor Prof. Parasuraman's legacy and memory, Parasuraman awards are presented for conference submissions that distinguish themselves in terms of innovation, excellence and contribution to the field of Neuroergonomics.

DAY 2: FRIDAY, JUNE 29, 2018

8:00 AM – 9:30 AM	**M3. Plenary Session 3** *Chair: Kenneth Barbee*	*Location: Bossone Mitchell Auditorium*
1	Cosmetic Neurology: Ethical Considerations and Public Attitudes *Anjan Chatterjee*	
2	**Keynote III: Networks that Learn, and the Networks They Learn** *Danielle Bassett*	
9:30 AM – 10:00 AM	**P3. Poster Session 3 + Coffee Break**	*Location: Bossone 1st Floor Lobby*
Poster Location: 1	Transcutaneous Stimulation to Improve Cognitive Functions	*Andy H. W. Chan, Joely Mass, Angela Alnemri, Julie Maillie, Tania Giovannetti, Laura Brennan, Ashwini Sharan, Carol Lippa and Mijail Serruya*
3	Evaluation of Riemannian Artifact Subspace Reconstruction for the correction of EEG artifacts	*Sarah Blum, Martin G. Bleichner and Stefan Debener*
5	Caffeine and Cognitive Task Performance: EEG and EDA Study	*Amanda Sargent, Jan Watson, Hongjun Ye, Rajneesh Suri and Hasan Ayaz*
7	Executive Function and Cerebral Hemodynamic Responses Following an Acute Bout of Physical Activity	*Brett Baker, Yeonhak Jung, Preeti Chopra, Dakota Skinner, Benjamin Zinszer and Darla M. Castelli*
9	Audience preference prediction for commercials using fNIRS	*Atahan Agrali, Siddharth Bhatt, Rajneesh Suri, Kurtulus Izzetoglu, Banu Onaral and Hasan Ayaz*
11	Multimodal Cognitive Workload Assessment Using EEG, fNIRS, ECG, EOG, PPG, and Eyetracking	*Jesse Mark, Adrian Curtin, Amanda Kraft, Amanda Sargent, Alison Perez, Leah Friedman, Amanda Barkan, Trevor Sands, William D. Casebeer, Matthias Ziegler and Hasan Ayaz*
13	The looming benefit in driving with ACC	*Marie Lahmer, Christiane Glatz, Verena C. Seibold and Lewis Chuang*
15	Upcycled vs. Conventional: Food product preference assessment using optical brain monitoring	*Siddharth Bhatt, Jonathan Deutsch, Benjamin Fulton, Jeonggyu Lee, Rajneesh Suri and Hasan Ayaz*
17	Emotional Ratings, Behavioral Performance, and Post-Concussive Symptoms in Adolescents with Mild Traumatic Brain Injury (mTBI) within Typical Recovery Windows: Reevaluating “Normal” Recovery	*Noah Sideman, Sarah Levin Allen, Christine J. Hammond,Amanda Sargent, Brittany Kane, Jennifer Mao, Hasan Ayaz, Denah Appelt and Brian J. Balin*
19	Pilot Study of Mental Flexibility brain networks	*Quentin Chenot and Sébastien Scannella*
21	Comparing machine learning approaches for motor-activity-related brain computer interfaces	*Lei Wang and Hasan Ayaz*
23	EEG Correlates of Working Memory Predict Gaze Variability during a Real-World Information Foraging Task	*Jeff Nador, Assaf Harel, Ion Juvina and Brad Minnery*
25	Tinted lenses affect our physiological responses to affective pictures: An EEG/ERP study	*Tim Schilling, Alexandra Sipatchin, Lewis Chuang and Siegfried Wahl*
27	Using Low Cost Eye-tracking to Verify Decision Aid (Dis)Use	*Amanda E. Harwood, Carryl L. Baldwin, Amanda E. Kraft, Alison M. Perez, Trevor M. Sands and Barlett A. Russell*
29	Does oxygenation of prefrontal cortex change in a two versus three-dimensional Tower of Hanoi task?	*Kim M. Ceja, Elham Bakhshipour, Reza Khoeilar and Nancy Getchell*

DAY 2: FRIDAY, JUNE 29, 2018

10:00 AM – 12:00 PM **Parallel Session**
3A. HCI + Human Performance
Chair: Daniel Callan *Location: Bossone Mitchell Auditorium*

1. **Exploring the Neural Correlates of Inattentional Deafness using Multimodal Brain Imaging**
   Daniel Callan
2. **Tracking difficulty in a helicopter simulator: EEG complexity as a marker for mental workload**
   Andreas T. Poulsen, Jean-maurice Leonetti, Lars Kai Hansen and Sid Kouider
3. **Out-of-the-loop Pilots: Study of an applied phenomenon through performance-monitoring EEG measures**
   Bertille Somon, Aurélie Campagne, Arnaud Delorme and Bruno Berberian
4. **Combining electrophysiological metrics in assessing changes in working memory load**
   Méyi Duleme, Stephane Perrey, Gerard Dray and Florian Tena-Chollet
5. **Measuring Workload Through EEG Signals in Simulated Robotic Assisted Surgery Tasks**
   Jackie Cha, Glebys Gonzalez, Jay Sulek, Chandru Sundaram, Juan Wachs and Denny Yu
6. **Cognitive Performance Assessment of UAS Sensor Operators via Neurophysiological Measures**
   Pratusha Reddy, Dale Richards and Kurtulus Izzetoglu
7. **Towards a Multimodal Model of Cognitive Workload through Synchronous Optical Brain Imaging and Eye Tracking Measures**
   Erdinc Isbilir, Murat P. Cakir, Cengiz Acarturk and Simsek Tekerek

10:00 AM – 12:00 PM **Parallel Session**
3B. Technology / Methodology
Chair: Steven Fairclough *Location: Behrakis Grand Hall 1*

1. **Closing the Loop Between Network Neuroscience, Neuromodulation, and Cognitive Optimization**
   John D. Medaglia
2. **fNIRS Feature Importance for Attentional State Prediction**
   Angela R. Harrivel, Robert Milletich, Chad L. Stephens, Christina Heinich, Nicholas Napoli, Mary Carolyn Last and Alan Pope
3. **A Comparison of ERP Data Cleaning Strategies for Neuroergonomic Error Detection**
   Ben D. Sawyer, Waldemar Karwowski, Petros Xanthopoulos and P. A. Hancock
4. **Development and Validation of a Portable, Durable, Rugged Functional Near-Infrared Spectroscopy (fNIRS) Device**
   Bethany Bracken, Elena Festa, Hsin-Mei Sun, Calvin Leather, Gary Strangman, Noa Palmon, Filipe Silva, Manuel Pacheco and Blaise Frederick
5. **Hierarchical modeling of graphs using modular decomposition**
   Miguel Méndez, Carenne Ludeña and Nicolás Bolívar
6. **Comparison of active brain area for wide and dense optode configurations using initial dip**
   Amad Zafar, Usman Ghafoor and Keum-Shik Hong
7. **Developing a Dual-Track Modeling Approach for Increased Understanding of Sensors and their Forecasting Capabilities**
   Raquel C. Galvan-Garza, Peter B. Bryan, Amanda E. Kraft, Alison M. Perez, Matthew J. Pava, William D. Casebeer and Matthias D. Ziegler

DAY 2: FRIDAY, JUNE 29, 2018

10:00 AM – 12:00 PM **Parallel Session**
3C. Brain & Health I
Chair: Kristy Arbogast *Location: Behrakis Grand Hall 2*

1. **Cognitive workload as the physiologic basis for symptom provocation with task performance in concussion: an fNIRS study of prefrontal brain activity**
   Christina L. Master, Lei Wang, Eileen Storey, Olivia Podolak, Matthew Grady, Andrew R. Mayer, Catherine McDonald, Kristy Arbogast and Hasan Ayaz
2. **Prefrontal Cortex Activity during Dual Task Performance: A Functional Neuroimaging Study**
   Syed A. Hassan, Leandro V. Bonetti, Kara K. Patterson, Deryk S. Beal, Anthony C. Ruocco and Darlene Reid
3. **Command following assessment and communication with vibro-tactile P300 and motor imagery BCIs in patients with disorders of consciousness and locked-in syndrome**
   Christoph Guger, Rossella Spataro and Guenter Edlinger
4. **Non-invasive measurement of cerebrovascular reactivity after traumatic brain injury using functional near-infrared spectroscopy**
   Michael Sangobowale, Franck Amyot, Hasan Ayaz, Pratusha Reddy, Nimay Kulkarni and Ramon Diaz-Arrastia
5. **Effect of visual field motion on vestibulo-myogenic response during upright stance: A pilot study**
   Yawen Yu and Emily A. Keshner
6. **Neuroergonomic evolution of cognitive dysfunction after concussion during driving tasks: An fNIRS Study**
   Divya Jain, Catherine C. McDonald, Eileen Storey, Olivia Podolak, Christina L. Master, Hasan Ayaz and Kristy Arbogast
7. **Postural Training using Augmented Visual Feedback and Vestibular Activation in Healthy Adults**
   Kwadwo O. Appiah-Kubi and W. G. Wright
8. **Effects of Head Mounted Display on kinematics of the TUG test in old and young adults: does the addition of a visual flow matter?**
   Rania Almajid, Emily A. Keshner, W. G. Wright, Erin Vasudevan and Carole A. Tucker

1:00 PM – 3:00 PM **M4. Plenary Session 4**
Chairs: Keith Orris and Banu Onaral *Location: Bossone Mitchell Auditorium*

1. **We wanted flying cars, instead we're getting telepathy: the new boom in neurotechnologies**
   Sid Kouider
2. **Panel: Industry Perspective: Current and Future Directions**
   Representatives from Northrop Grumman, Lockheed Martin, BAE Systems, Charles River Analytics, Design Interactive, CHOP and more

DAY 2: FRIDAY, JUNE 29, 2018

3:00 PM – 3:30 PM	**P4. Poster Session 4 + Coffee Break**	*Location: Bossone 1st Floor Lobby*
Poster Location: 2	Using Deep Convolutional Neural Networks to Develop the Next Generation of Sensors for Interpreting Real World EEG Signals Part 1: Sensing Visual System Function in Naturalistic Environments	*A J. Solon, Stephen Gordon, Anthony Ries, Jonathan McDaniel, Vernon Lawhern and Jonathan Touryan*
4	Neural Correlates of Math Anxiety and Ability on Price Promotions and Consumer Decisions	*Amanda Sargent, Atahan Agrali, Siddharth Bhatt, Hongjun Ye, Kurtulus Izzetoglu, Banu Onaral, Hasan Ayaz and Rajneesh Suri*
6	Revealing Cortical Activation Patterns of Novel Task Performance in Children with Low Coordination via fNIRS	*Shawn Joshi, Benjamin D Weedon , Patrick Esser, Yan-Ci Liu, Daniella N. Springett, Andy Meaney, Anne Delextrat, Steve Kemp, Tomas Ward, Hasan Ayaz and Helen Dawes*
8	Effects of Machine Usability on Final Product Preferences	*Hongjun Ye, Amanda Sargent, Jan Watson, Siddharth Bhatt, Hasan Ayaz and Rajneesh Suri*
10	Mind perception modulates social attention in real-time human-robot interaction	*Ali Momen and Eva Wiese*
12	Quality of synthetic speech and auditory working memory performance: neuroergonomic perspectives from fNIRS	*Adrian Curtin and Hasan Ayaz*
14	Using behavioral and neural measures to assess training in scene categorization	*Joseph Borders, Birken Noesen, Bethany Dennis and Assaf Harel*
16	Cognitive Control of Walking in Aging	*Meltem Izzetoglu and Roee Holtzer*
18	Reasoning About Information Provided by Bots	*Stephanie Tulk and Eva Wiese*
20	Assessing Usability of Wealth Management Portals using Neurophysiological Tools: Eyetracking and fNIRS Study	*Siddharth Bhatt, Atahan Agrali, Rajneesh Suri and Hasan Ayaz*
22	Neuroergonomic Evaluation of Hot Beverage Products: A multi-modal EEG and EDA Study	*Jan L. Watson, Amanda Sargent, Hongjun Ye, Rajneesh Suri and Hasan Ayaz*
24	Control of a prosthetic leg based on walking intentions for gait rehabilitation: an fNIRS study	*Rayyan A. Khan, Noman Naseer, Hammad Nazeer and Malik Nasir A. Khan*
26	Altered functional connectivity in individuals with loss of control eating	*Leora Benson, Karol Osipowicz, Fengqing (Zoe) Zhang and Michael R. Lowe*
28	Investigation of light propagation and detection in human head for realistic settings under clinical conditions	*Lei Wang, Hasan Ayaz and Meltem Izzetoglu*

DAY 2: FRIDAY, JUNE 29, 2018

3:30 PM – 5:30 PM **Parallel Session**
4A. Interactions with Autonomous Systems and Robots
Chair: Carryl L. Baldwin *Location: Bossone Mitchell Auditorium*

1. **Attention Management in Highly Automated Systems**
   Carryl L. Baldwin
2. **Physiological Assessment of Engagement during HRI: Impact of Manual vs Automatic Mode**
   Nicolas Drougard, Raphaëlle N. Roy, Sébastien Scannella, Frédéric Dehais and Caroline Ponzoni Carvalho Chanel
3. **Dynamic of mind wandering within automated environments**
   Jonas Gouraud, Arnaud Delorme and Bruno Berberian
4. **Perceived robot personality affects social attention in real-time human-robot interaction**
   Ali Momen and Eva Wiese
5. **Using EEG for Predicting User Preferences of Physical Compliance in Human-Robot Cooperation**
   Amir Memar and Ehsan T. Esfahani
6. **Assessing human reaction to a virtual agent's facial feedback in a simple Q&A setting**
   Reza Moradinezhad and Erin Solovey
7. **Effects of embodiment on social attention mechanisms in human-robot interaction**
   Abdulaziz Abubshait, Patrick Weis and Eva Wiese

3:30 PM – 5:30 PM **Parallel Session**
4B. Training & Adaptation
Chair: Ryan McKendrick *Location: Behrakis Grand Hall 1*

1. **Theories and Method for Labeling Cognitive Workload: Classification and Transfer Learning**
   Ryan Mckendrick, Bradley Feest, Amanda E. Harwood, Jessica Crouch and Brian Falcone
2. **Impact of Escalating Cognitive Workload and Temporal Demands on Surgeons Cognitive Function**
   Harsimrat Singh, Hemel Modi, Guang-Zhong Yang, Ara Darzi and Daniel R. Leff
3. **Classification of Task Type and Reaction Time of Operator in Simulated Multiple Robot Tele-Exploration**
   Hemanth Manjunatha, Amir Memar and Ehsan Esfahani
4. **The Cognitive Neuroscience of Insight**
   Brian Erickson and John Kounios
5. **Functional Near-Infrared Spectroscopy in Athletes Pre- and Post-Season Demonstrates Consistent Pattern of Frontal Cortical Activation with King-Devick Testing**
   Kristy Arbogast, Christina L. Master, Fairuz Mohammed, Eileen Storey, Olivia Podolak, Shelly Sharma, Catherine C. McDonald and Hasan Ayaz
6. **Neuroimaging-guided Adaptive Training in Flight Simulators**
   Jesse Mark, Amanda Kraft, William D. Casebeer, Matthias D. Ziegler and Hasan Ayaz

DAY 2: FRIDAY, JUNE 29, 2018

3:30 PM – 5:30 PM **Parallel Session**
4C. Brain & Health II
Chair: Keum-Shik Hong *Location: Behrakis Grand Hall 2*

1. **Brain-Integrated Psychiatry: Neuroimaging-aided Comprehensive Cognitive Assessment towards informed Diagnosis and Treatment in Schizophrenia**
   Adrian Curtin, Junfeng Sun, Qiangfeng Zhao, Banu Onaral, Jijun Wang, Shanbao Tong and Hasan Ayaz
2. **Neurobiological Markers of Individual Differences in Omega-3 Fatty Acids Revealed by Multivariate fMRI**
   M. Tanveer Talukdar, Marta K. Zamroziewicz, Christopher E. Zwilling and Aron K. Barbey
3. **Estimation of cognitive brain activity in sickle cell disease using functional near-infrared spectroscopy and dynamic systems modeling**
   John Sunwoo, Payal Shah, Wanwara Thuptimdang, Maha Khaleel, Thomas D. Coates and Michael C. Khoo
4. **The Influence of Game Demand on Distraction from Experimental Pain: A fNIRS Study**
   Kellyann Stamp, Chelsea Dobbins, Stephen Fairclough and Helen Poole
5. **A Model for Diabetic Blood Glucose Prediction Based on Electroencephalography Signals Using Deep Learning**
   Ali Berkol, Gokay Karayegen, Emre O. Tartan, Yahya Ekici, Gozde Kara and Zeliha Eser
6. **Prefrontal Cortex Response to Drug Cues, Craving, and Current Depressive Symptoms are Associated with Relapse to Opioids in Methadone-maintained Patients**
   Andrew S. Huhn, Mary M. Sweeney, Michael S. Kidorf, David A. Tompkins, Robert K. Brooner, Hasan Ayaz and Kelly E. Dunn
7. **Neurocorrelates of Deciding How Much Ice Cream to Eat During an Eating Episode**
   Jennifer A. Nasser, Lisa Lanza, Eram Albajri, Angelo Del Parigi and Hasan Ayaz

5:45 PM – 6:30 PM **M5. Closing Ceremony: Epilogue Panel and Farewell Remarks**
Chairs: Hasan Ayaz and Frédéric Dehais *Location: Bossone Mitchell Auditorium*

1. **Neuroergonomics Society: Opportunuities, Challenges, Next Steps**
   Hasan Ayaz and Frédéric Dehais
2. **Farewell Remarks and Closing**
   Hasan Ayaz and Frédéric Dehais

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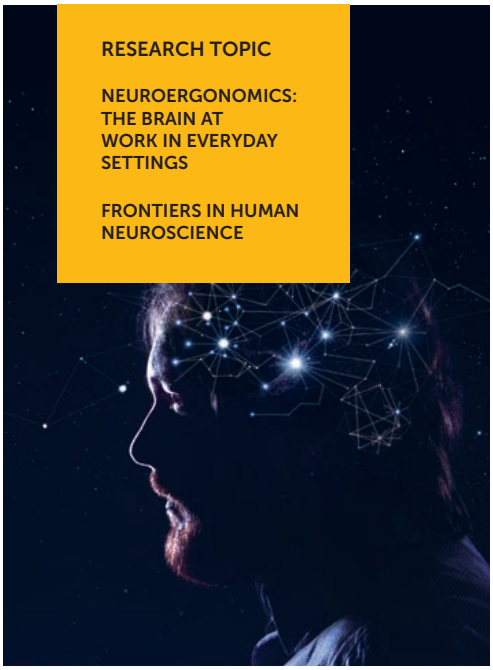

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