

# FNIRS 2016 CONFERENCE PROGRAM

## Main Conference Venue:

Université Paris Descartes Main Building, 12 rue de l'École de Médecine, 75006, Paris

Oral presentations: Grand Amphithéâtre

Poster presentations, lunch and coffee breaks: Grand Hall & Galerie Saint Germain

Locations other than the main venue are indicated separately in the program below.

## Oct 13<sup>th</sup> THURSDAY

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9:00-4:30: Training Course

CUSP Building, 45 rue des Saints-Pères, 75006, Paris

Note that this event is not part of the main conference program and requires separate registration and payment.

5:30-6:00: Opening remarks

Judit Gervain, co-chair

Claude Meunier, president, Institut Neurosciences & Cognition, Université Paris Descartes

**6:00-7:00: Keynote: Maria Angela Franceschini [chair: Joseph Culver]**

***Clinical neuro-monitoring with NIRS-DCS***

7:00-8:00: Reception

## Oct 14<sup>th</sup> FRIDAY

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**8:30-10:00 Neurodevelopment 1 [chairs: Heather Bortfeld & Nadège Roche]**

8:30-9:00 Invited talk

Yasuyo Minagawa: *Neuroimaging the developing brain: From the neonatal period to adolescence*

9:00-9:15 Silvia Benavides-Varela, Roma Siugzdaite, David. M. Gómez, Francesco Macagno, Luigi Cattarossi, Jacques Mehler: *Functional interactions among cortical regions supporting word learning in newborns*

9:15-9:30 Laurianne Cabrera, Judit Gervain: *The processing of slow and fast temporal cues in phonetic perception at birth, an EEG-NIRS study*

9:30-9:45 Lauren Emberson, Alex Boldin, Julie Riccio, Ronnie Guillet and Richard Aslin: *Deficits in Top-Down, Sensory Prediction in Infants At-Risk Due to Premature Birth*

9:45-10:00 Simone Cutini, Dénes Szűcs, Natasha Mead, Martina Huss, Usha Goswami: *Atypical right hemisphere response to slow temporal modulations in children with developmental dyslexia*

**10:00-11:00 Poster Session 1 & Coffee**

**11:00-12:15 Brain and Systemic Physiology [chairs: Turgut Durduran & Gemma Bale]**

11:00-11:30 Invited talk

Ursula Wolf: *A novel methodology to better understand what is happening in the brain: Systemic physiology complemented functional near-infrared spectroscopy (SPC-fNIRS)*

11:30-11:45 Davide Tamborini, Parisa Farzam, Bernhard Zimmerman, Kuan-Cheng Wu, Jason Sutin, David Boas and Maria Angela Franceschini: *Multi-wavelength, multi-distance diffuse correlation spectroscopy for simultaneous measurement of blood flow and hemoglobin oxygenation*

11:45-12:00 Matthew Caldwell, Felix Scholkmann, Ursula Wolf, Martin Wolf, Clare Elwell and Ilias Tachtsidis: *Computational modelling of the effects of systemic physiology on brain haemodynamics suggests that physiological confounding is able to both mask and mimic functional activation*

12:00-12:15 Yoko Hoshi, Yukari Tanikawa, Eiji Okada, Hiroshi Kawaguchi, Manabu Machida, Masahito Nemoto, Toru Kodama and Masataka Watanabe: *Estimation of optical properties of the cerebral tissue using time-resolved spectroscopy of femtosecond laser pulses*

**12:15-1:15 Early Investigator Award Presentations [chair: Clare Elwell]**

Meryem Ayse Yucel, Juliette Selb, Christopher Aasted, Pei-Yi Lin, David Borsook, Lino Becerra and David Boas: *Mayer waves reduce the accuracy of estimated hemodynamic response functions in functional Near-Infrared Spectroscopy*

Sarah Lloyd-Fox, Anna Blasi, Greg Pasco, Theodore Gliga, Clare E Elwell, Tony Charman, Declan Murphy, Mark Johnson: *Neural signature of autism evident before six months of life*

Robert Cooper, Sabrina Brigadoi and David Boas: *Array Designer: automated optimum array design for functional near-infrared spectroscopy*

**1:15-2:00 Lunch**

**2:00-3:30 Clinical Applications 1 [chairs: Joy Hirsch & Juliette Selb]**

2:00-2:30 Invited talk

Ippeita Dan: *fNIRS-based neuropharmacological assessment on children with attention deficit/hyperactivity disorder*

2:30-2:45 Carly Anderson, Ian Wiggins, Pdraig Kitterick, Douglas Hartley: *Cortical activation measured using fNIRS: a predictor of cochlear implant outcome?*

2:45-3:00 Willy Mattheus, Sonja Rossi, Dirk Mürbe, Anja Hahne: *Speech and Music processing by postlingually deafened cochlear implant patients*

3:00-3:15 Mana Manoochehri, Mahdi Mahmoudzadeh, Victoria Osharina, Fabrice Wallois: *Fast Optical Signal Changes during Epileptic Spikes in the Human Model*

- 3:15-3:30 Martina Giovannella, Guillem Mitjà, Clara Gregori-Pla, Michal Kacprzak, David Ibañez, Giulio Ruffini, Turgut Durduran: *Concurrent diffuse optical measurement of cerebral hemodynamics and EEG during transcranial direct current stimulation (tDCS) in humans*

**3:30-5:00 Poster Session 2 & Coffee**

**5:00-6:45 Multimodal Monitoring [chairs: Adam Eggebrecht & Tanja Dragojevic]**

5:00-5:30 Invited talk

Solomon Diamond: *Multimodal fNIRS and EEG for studying neurovascular coupling*

5:30-5:45 Takashi Numata, Masashi Kiguchi and Hiroki Sato: *Multimodal measurement of brain responses to word memory task extracted from EEG, NIRS, and pupil diameter signals*

5:45-6:00 Adrian Curtin, Jijun Wang, Junfeng Sun, Shanbao Tong, Banu Onaral and Hasan Ayaz: *Concurrent fNIRS and TMS for comparison of Evoked Responses to Pulse-Matched High Frequency and Intermittent Theta Burst Stimulation*

6:00-6:15 Matthew Moore, Edward L. Maclin, Alexandru D. Iordan, Yuta Katsumi, Andrew Bagshaw, Stephen Mayhew, Andrea T. Shafer, Anthony Singhal, Sanda Dolcos, Monica Fabiani, Gabriele Gratton and Florin Dolcos: *Tri-Modal Simultaneous Investigation of Human Brain Function: Evidence for a Proof of Concept*

6:15-6:30 Dariusz Janusek, Piotr Lachert, Przemyslaw Pulawski, Daniel Milej, Piotr Sawosz, Michal Kacprzak and Katarzyna Blinowska: *Simultaneous measurement of brain activity by functional near infrared spectroscopy and electroencephalography during motor task*

6:30-6:45 Mahnoush Amiri, Alexandru Hanganu, Frédéric Lesage and Yves Joanette: *A multimodal approach to evaluate the effect of cortical morphology of normal aging on the hemodynamic response measured by fNIRS: A language study*

**Oct 15<sup>th</sup> SATURDAY**

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**8:30-10:00 Clinical Applications 2 [chairs: Ippeita Dan & Hasan Ayaz]**

8:30-8:45 Claus Lindner, Ivette Chocrón Da Prat, Ángela Sánchez-Guerreiro, Joseph L Hollmann, Michal Kacprzak, Udo M Weigel, Olga Martinez Silva, Miriam de Nadal, Juan Sahuquillo, Turgut Durduran: *Microvascular cerebral metabolism and blood flow and bispectral index*

8:45-9:00 Bettina Sorger, Laurien Nagels-Coune, Amaia Benitez Andonegui, Michael Lühns, Lars Riecke, Rainer Goebel: *Brain-based communication via online-decoded fNIRS signals*

9:00-9:15 Androu Abdalmalak, Daniel Milej, Mamadou Diop, Mahsa Shokouhi, Lorina Naci, Adrian Owen, Keith St. Lawrence: *Feasibility of fNIRS as a Brain Computer Interface for Studies of Disorders of Consciousness*

9:15-9:30 Samuel Lucas, Daniel Lighter, Michael Clancy, David Davies, George Balanos, Antonio Belli, Hamid Dehghani: *Assessing the quantitative accuracy of near infrared spectroscopy using simulated hypoxia as a model for traumatic brain injury*

9:30-9:45 Juliette Selb, Jason Sutin, Pei-Yi Lin, Parisa Farzam, Bernhard Zimmermann, Kuan Cheng Wu, Davide Tamborini, Zachary Starkweather, Sophia Bechek, Apeksha Shenoy, Siddharth Biswal, David Boas, Eric Rosenthal, Maria Angela

Franceschini : *Prolonged monitoring of cerebral blood flow and autoregulation in subarachnoid hemorrhage and stroke patients with diffuse correlation spectroscopy*

9:45-10:00 Adam Eggebrecht, Karla Bergonzi, Andrew Fishell, Hamid Dehghani, Jin-Moo Lee, Joseph Culver: *Bedside mapping of brain function during acute stroke recovery using High-Density Diffuse Optical Tomography*

### **10:00-11:00 Poster Session 3 & Coffee**

#### **11:00-12:30 Hardware 1 [chairs: Alessandro Torricelli & Anna Gerega]**

11:00-11:30 Invited talk

Frédéric Lesage: *Towards wearable NIRS*

11:30-11:45 Davide Contini, Mauro Buttafava, Edoardo Martinenghi, Alberto Dalla Mora, Marco Renna, Antonio Pifferi, Alberto Tosi, Alessandro Torricelli: *A compact low-power Time-Domain fNIRS system*

11:45-12:00 Tanja Dragojevic, Joseph L. Hollmann, Davide Tamborini, Mauro Buttafava, Joseph P. Culver, Franco Zappa, Turgut Durduran: *Speckle contrast optical spectroscopy of the adult brain with a novel, compact system*

12:00-12:15 Karla Bergonzi, Adam Eggebrecht, Joseph Culver: *Lightweight high-density diffuse optical tomography using sCMOS detection*

12:15-12:30 Phong Phan, David Highton, Jonathan Lai, Ilias Tachtsidis, Martin Smith and Clare Elwell: *A New Multichannel Broadband Near-Infrared Spectroscopy System to Measure the Spatial Distribution of Cellular Oxygen Metabolism and Tissue Oxygenation*

### **12:30-1:30 Lunch**

#### **1:30-2:45 Neurodevelopment 2 [chairs: Sarah Lloyd-Fox & Cécile Issard]**

1:30-1:45 Nawal Abboub, Thierry Nazzi, Judit Gervain: *Prosodic grouping at birth*

1:45-2:00 Katherine Perdue, Julia Cataldo, Sarah A. McCormick, Alissa Westerlund, Charles A. Nelson: *fNIRS reveals distinct infant emotional face processing*

2:00-2:15 Vanessa Reindl, Christian Gerloff, Wolfgang Scharke, Kerstin Konrad: *Brain-to-brain synchrony of parent and child during cooperation revealed by fNIRS hyperscanning*

2:15-2:30 Alexa Ellis, Xiaosu Hu, Rebecca Marks, Pamela Davis-Kean, Craig Smith, Ioulia Kovelman: *Shedding Light On Precursors to Division: An fNIRS Study*

2:30-2:45 Lourdes Delgado Reyes, Sobanawartiny Wijekumar, Vincent Magnotta, John P. Spencer: *Connecting the Dots: Brain-Behavior Relationships Between Looking Tasks and Explicit Decision Tasks*

### **2:45-4:30 Poster Session 4 & Coffee**

#### **4:30-6:00 Special Session "Global fNIRS" [chair: Charles A. Nelson & Katherine Perdue]**

4:30-4:40 Charles A. Nelson: *Global fNIRS: An Introduction*

4:40-5:00 John P. Spencer, Sobanawartiny Wijekumar, Lourdes Delgado Reyes, Aarti Kumar, Vishwajeet Kumar: *Infant brain health in India: Assessing working memory capacity using image-based fNIRS*

5:00-5:20 Pei-Yi Lin, Jason Sutin, Parisa Farzam, Juliette Selb, Fang-Yu Cheng, Peter Ssemyonga, Edith Mbabazi, John Kimbugwe, Joyce Nalwoga, Esther Nalule, Brian Kaaya, Katherine Hagan, P. Ellen Grant, Benjamin Warf, Maria Angela

- Franceschini: *Cure Forward: A novel diagnostic tool to improve infant hydrocephalus outcomes in the developing and the developed worlds*
- 5:20-5:40 Sarah Lloyd-Fox, C. W. Lee, L. Pirazzoli, A. Blasi, D. Halliday, K. Begus, R. J. Cooper, M. K. Darboe, A. M. Prentice, S. E. Moore, T. A. Austin, M. H. Johnson, C. E. Elwell: *The Brain Imaging for Global Health Project (BRIGHT) in The Gambia and UK*
- 5:40-6:00 Charles A. Nelson, Katherine L. Perdue, Swapna Kumar, Alissa Westerlund, Sarah Lloyd-Fox, Clare Elwell, Sarah Jensen, Annie Berens: *The use of fNIRS in the study of early cognitive development in Dhaka, Bangladesh*

**6:00-6:30 fNIRS Society General Assembly**

**8:00- Social Event**

Pavillon Daunou, 18 rue Daunou, 65002, Paris

**Oct 16<sup>th</sup> SUNDAY**

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**8:30-10:00 Neonatal & Pediatric Applications [chair: Fabrice Wallois & Ardalan Aarbi]**

8:30-9:00 Invited talk

Gorm Greisen: *Testing the benefit and harms of cerebral oxygenation monitoring in preterm infants*

9:00-9:15 Fumitaka Homae, Hama Watanabe, Gentaro Taga: *The Characteristics of the Cortical Functional Networks in Individual Infants*

9:15-9:30 Laura Dempsey, Robert Cooper, Maria Chalia, Samuel Powell, Chuen Wai Lee, Andrea Edwards, Nicholas Everdell, Dimitrios Airantzis, Andrew Mitchell, Adam Gibson, Simon Arridge, Topun Austin, Jeremy Hebden: *Time-resolved diffuse optical tomography of the infant brain during neuropathological events and passive arm movement*

9:30-9:45 Fang-Yu Cheng, Katherine Hagan, Yvonne Sheldon, Meryem A. Yücel, Kuan-Cheng Wu, P. Ellen Grant, Maria Angela Franceschini, Pei-Yi Lin: *Maturation of cerebral hemodynamic response in premature infants*

9:45-10:00 Yoko Hakuno, Yasuyo Minagawa: *Neural activations to mutual gaze and contingent responsiveness during live interactions in infancy*

**10:00-11:00 Poster Session 5 & Coffee**

**11:00-12:30 Data Analysis and Hardware 2 [chairs: Frédéric Dehais & Kevin Mandrick]**

11:00-11:15 Thomas Vincent, François Tadel, Alexis Machado, Zhengchen Cai, Giovanni Pellegrino, Louis Bherer, Jean-Marc Lina, Sylvain Baillet, Christophe Grova: *NIRSTORM: a brainstorm plugin dedicated to joint EEG/fNIRS analysis*

11:15-11:30 Michael Lührs, Rainer Goebel: *A novel Neurofeedback and BCI toolbox for real-time fNIRS: Turbo-Satori*

11:30-11:45 Andrew Fishell, Adam Eggebrecht, Steven Petersen and Joseph Culver: *High-Density Diffuse Optical Tomography during Movie Viewing: Response Reproducibility and Functional Mapping*

11:45-12:00 Frederic Lange, Luke Dunne, Ilias Tachtsidis: *Evaluation of Hemoglobin and Cytochrome using a Broadband Time Resolved NIRS system*

12:00-12:15 David Highton, Danial Chitnis, Phong Phan, Robert J Cooper, Simone Quaggia, Ilias Tachtsidis, Nicholas Everdell, Jeremy Hebden, Martin Smith, Clare Elwell: *Multiwavelength Diffuse Optical Tomography to Resolve Cytochrome C Oxidase*

12:15-12:30 Dominik G. Wyser, Olivier Lamercy, Felix Scholkmann, Martin Wolf, Roger Gassert: *A wearable fNIRS device for measuring human brain activity in everyday environments*

**12:30-1:30 Lunch (and Board Meeting)**

**1:30-3:00 Poster session 6**

**3:00-4:30 Neurocognition [chairs: Fumitaka Homae & Felix Scholkmann]**

3:00-3:30 Invited talk

Frederic Dehais: *Monitoring human performance under realistic operational settings*

3:30-3:45 Hemel Modi, Harsimrat Singh, Thanos Athanasiou, Guang-Zhong Yang, Ara Darzi, Daniel Leff: *Random Effect Modelling of Prefrontal Cortical Haemodynamics to Determine the Influence of Surgical Expertise on Executive Control during Temporal Stress in the Operating Room*

3:45-4:00 Guillermo Borragán, Céline Guillaume, Hichem Slama, Carlos Guerrero-Mosquera, Philippe Peigneux: *Performance decrease associated to cognitive fatigue is regulated by connectivity disruption more than reduced activity*

4:00-4:15 Joy Hirsch, J. Adam Noah, Xian Zhang, Swethasri Dravida, Ilias Tachtsidis: *Identification of Neural Systems Involved in Interpersonal Eye-to-Eye Contact: An fNIRS Hyperscanning Investigation*

4:15-4:30 Anna Gerega, Stanislaw Wojtkiewicz, Piotr Sawosz, Lukasz Dziuda, Mariusz Krej, Paulina Baran, Krzysztof Kowalczyk, Roman Maniewski, Adam Liebert: *fNIRS-based methodology for assessment of tolerance for reduced brain perfusion in air force pilots using lower body negative pressure test*

**4:30-5:00 Closing remarks**

Joseph Culver, co-chair