Natalie Anna Steinemann

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Education

PhD Neural Engineering, City College of New York	2012-2017
MSc Neural Engineering, Trinity College Dublin, Ireland	2011-2012
MSc Biomedical Engineering, Ghent University, Belgium	2010-2012
BA Economics & Business, FernUniversität in Hagen, Germany	2007-2011
BEng Mechanical Engineering, Jade University, Germany	2006-2010
Summer course in **Methods in Computational Neuroscience,** Marine Biology Laboratory	2013
Two semesters abroad at **University of California at Berkeley**	2009

Fellowships, Awards and Scholarships

2014-2017	Dean's scholarship Granted by the Dean of Engineering at CCNY, $16,750
2015	Trainee Professional Development Award Granted by the Society for Neuroscience, $1,205
2013	Methods in Computational Neuroscience tuition scholarship Granted by the Marine Biology Laboratory, $ 1,505
2012-2014	European Recovery Program scholarship Granted by the German National Academic Foundation, $91,400
2012-2015	Postgraduate scholarship Granted by the Irish Research Council for Science, Engineering and Technology, $65,000 (declined in favor of the above)
2010-2012	Erasmus Mundus scholarship Granted by the European Union, $36,000
2006-2010	Airbus Operations Fellowship Granted by the Airbus Operations GmbH, $49,000
2009	Study Abroad Scholarship for studies at UC Berkeley Granted by the Jade University Wilhelmshaven, $1,300
2006	State Award for Excellence in Secondary Education Awarded to the top high school graduates by Bremen, Germany
2004 & 2005	State Award for Excellence in Athletics Awarded to regional and national champions by Bremen, Germany

Research & Professional Experience

03/2017 – present | Columbia University | Postdoc
Post-doctoral research conducted with Dr. Michael Shadlen
Investigating parallel processing and abstract representations in macaque areas LIP and MIP during perceptual decision-making, when choices are reported by saccadic or manual responses. Behavioral training of non-human primates, recording single-unit activity and scalp potentials, pharmacological and optogenetic manipulation of neural activity.

01/2017 – 03/2017 | City College of New York | Postdoc
Post-doctoral research conducted with Dr. Simon Kelly
Characterization of neural mechanisms of decision making in humans through neural measures of decision accumulation and motor preparation (EEG) as well as localization of human area for evidence integration through simultaneous EEG-fMRI recordings. Computational modeling of behavior and neural activity.

2012 – 2016 | City College of New York | PhD student
Doctoral thesis research conducted with Dr. Simon Kelly
Characterization of neural mechanisms of decision making in humans through neural measures of decision accumulation and motor preparation (EEG) as well as localization of human area for evidence integration through simultaneous EEG-fMRI recordings. Computational modeling of behavior and neural activity.

2011 – 2012 | Trinity College Dublin, Ireland | Thesis research
Master thesis research conducted with Dr. Richard Reilly, & Dr. Shane O'Mara
Thesis: Attractor Model of Sustained Sense of Head-Direction During Sleep
Analysis of single-unit recordings in rats, Hodgkin-Huxley type models in Matlab

2011 | Trinity College Dublin, Ireland | Internship
Independent research conducted with Dr. Robert Whelan
Determining effect of local lesion volume on cognitive impairment in Multiple Sclerosis patients

2011 | FernUniversität Hagen, Germany | Thesis reseach
Bachelor thesis research conducted with Dr. Ewald Scherm (Economics)
Thesis: Knowledge exchange in regional clusters

2010 | Airbus Operations GmbH & Jade University, Germany | Thesis research
Bachelor thesis research conducted with Dr. Volker Baumbach, & Dr. Peter Lücking
Thesis: Evaluation of novel hydraulic heat exchanger concepts based on surface cooling elements

2008 | Airbus Operations GmbH | Internship
Independent research project conducted with Dr. Sebastian Wendel
Influence of resign and curing duration on tensile strength of carbon-fiber reinforced plastics

Teaching & Mentoring Experience

01/2017-04/2017 | Harlem Academy | Teaching Assistant
6-week course to introduce Middle School students to Neuroscience and scientific methods: preparation and instruction of classes.

08/2013-12/2013 | Harlem Children's Zone | Teaching Assistant
Introducing High School students to scientific methods through experiments: preparation and instruction of classes.

2013-2015 | City College of New York | Head Teaching Assistant
Undergraduate class in Bioelectrical Circuits with 50-70 students: organized and instructed laboratory classes, supervised three teaching assistants, advised students, and corrected homework.

Mentored students

Farzaneh Olihanezhad, Intern at the Shadlen Lab	2018-present
Modelling of decision behavior and underlying neural mechanisms	
Olivia Johnson, Intern at the Shadlen Lab	2018
Programming in Matlab, modelling of decision behavior	
Kivilcim Afacan, PhD student in Biomedical Engineering	2015-2016
Programming in Matlab, processing and interpretation of EEG data	
Kristin Mayo, undergraduate student in Mechanical Engineering	2015-2016
General mentoring through CCNY Women in Science initiative	
Dario Pinos, undergraduate student in Biomedical Engineering	2009
Programming in Matlab, task design for EEG studies	

Peer-reviewed Publications

Steinemann, NA, O'Connell, RG, & Kelly, SP (2018): *Decisions are expedited through multiple neural adjustments spanning the sensorimotor hierarchy*. 9: 3627.

Afacan-Seref, K, **Steinemann, NA**, Blangero, A, & Kelly, SP (2018): *Dynamic interplay of value and sensory information in high-speed decision making*. Current Biology, 28 (5): 795-802.

Odean, NN, & **Steinemann, NA** (2017): Electrical stimulation of the pulvinar disrupts control of spatially directed actions. The Journal of Neuroscience, 37 (29): 6811-6813.

Steinemann, NA, Moisello, C, Ghilardi, MF, & Kelly, SP (2016): *Tracking neural correlates of successful learning over repeated sequence observations.* Neuroimage, 137: 152-164.

Conference Talks

Steinemann, NA, O'Connell, RG, & Kelly, SP (June 2018): *Intensified motor activity makes for faster responses when deciding under speed pressure*. Talk at the Congress of the International Society of Electrophysiology and Kinesiology, Dublin, Ireland.

Steinemann, NA, O'Connell, RG, & Kelly, SP (November 2016): *Supramodal decision-related activation in simultaneously recorded human EEG and fMRI*. Talk at the Annual Meeting of the Society of Neuroscience, San Diego.

Conference Posters

Steinemann, NA, O'Connell, RG, & Kelly, SP (October 2015): *Dissociable adjustments at abstract and motor preparation levels in different urgency regimes*. Poster at the Annual Meeting of the Society of Neuroscience, Chicago.

Steinemann, NA, O'Connell, RG, & Kelly, SP (May 2015): *Relating human neurophysiological correlates of decision-making to mathematical decision variables*. Poster at the Symposium of the Biology of Decision-Making, Paris.

Steinemann, NA, O'Connell, RG, & Kelly, SP (November 2014): *Neurophysiological correlates of the speed-accuracy trade-off in humans in time and amplitude*. Poster at the Annual Meeting of the Society of Neuroscience, Washington D. C.

Steinemann, NA, Moisello, C, Ghilardi, MF & Kelly, SP (December 2013): *Electrophysiological correlates of effective consolidation and surprise reduction during visual sequence learning*. Poster at the IEEE Signal Processing in Medicine and Biology Symposium, New York.

Steinemann, NA, Moisello, C, Ghilardi, MF & Kelly, SP (June 2013): *Modulation of ERP components P3 and N2 during intentional visual sequence learning*. Poster at the 17th International Conference on Cognitive and Neural Systems, Boston.

Steinemann, NA, Tsanov, M, Reilly, RB & O'Mara, SM (July 2012): *Assessing leak current-based models as a means to explain sustained sense of head-direction during spindle sleep in rodents*. Poster presented at the 8th Forum of European Neuroscience Society, Barcelona, Spain.

Skills

Research skills: non-human primate training and intracranial recordings, EEG in human and non-human primates, simultaneous EEG/fMRI in humans, EMG in humans, eye-tracking

Computer science: Matlab, Python, PsychToolbox, Statistical Parametrical Mapping (fMRI)

Languages: German (mother tongue), English (excellent), Dutch, French & Spanish (basic)
Technical: Certified Aircraft Mechanic

References

Michael Shadlen:	shadlen@columbia.edu
Simon Kelly:	simon.kelly@ucd.ie
Redmond O'Connell:	reoconne@tcd.ie
Lucas Parra:	parra@ccny.cuny.edu
Richard Reilly:	richard.reilly@tcd.ie