Nicholas A. Steinmetz

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Education

2007 –2014	Ph.D., Neurosciences, Stanford University, Stanford, CA, USA
	Supervisors: Prof. Tirin Moore (Neurobiology) and Prof. Kwabena Boahen (Bioengineering)
2003 –2007	Bachelor of Science and Engineering in Bioengineering, *summa cum laude*
	University of Pennsylvania, Philadelphia, PA, USA

Employment

2017 – present	Senior Research Associate, University College London, London, UK
	Supervisors: Prof. Matteo Carandini (Ophthalmology) and Prof. Kenneth Harris (Neurology)
2017 – present	Program coordinator, "Neuropixels 2" Wellcome Collaborative Award
2014 – 2017	Research Associate, University College London, London, UK

Peer-Reviewed Publications

2017	Jun J*, **Steinmetz NA***, Siegle JH*, Denman DJ*, Bauza M*, et al. Fully Integrated Silicon Probes for High-Density Recording of Neural Activity	*Nature*
	Burgess CP*, Lak A*, **Steinmetz NA***, Zatka-Haas P*, et al. High-Yield Methods for Accurate Two-Alternative Visual Psychophysics in Head-Fixed Mice	*Cell Reports*
	Steinmetz NA, Buetfering C, Lecoq J, Lee CR, et al. Aberrant Cortical Activity in Multiple GCaMP6-Expressing Transgenic Mouse Lines	*eNeuro*
	Sridharan D, **Steinmetz NA**, Moore T, Knudsen EI Does the Superior Colliculus Control Perceptual Sensitivity or Choice Bias during Attention? Evidence from a Multialternative Decision Framework	*J. of Neurosci*
2016	Engel TA*, **Steinmetz NA***, Gieselmann MA, Thiele A, Moore T, Boahen K Selective modulation of cortical state during spatial attention	*Science*
	Stringer C, Pachitariu M, **Steinmetz NA**, Okun M, Bartho P, Harris K, Sahani M, Lesica N Inhibitory control of correlated intrinsic variability in cortical networks	*eLife*
	Pachitariu M, **Steinmetz NA**, Kadir S, Carandini M, Harris KD Fast and accurate spike sorting of high-channel count probes with KiloSort	*NIPS*
2015	Okun M, **Steinmetz NA**, … Carandini M, Harris KD Diverse coupling of neurons to populations in sensory cortex	*Nature*
2014	Sridharan D, **Steinmetz NA**, Moore T, Knudsen EI Distinguishing bias from sensitivity effects in multialternative detection tasks	*J. of Vision*
	Steinmetz NA, Moore T Eye Movement Preparation Modulates Neuronal Responses in Area V4 When Dissociated from Attentional Demands	*Neuron*
	Steinmetz NA Circuits underlying visual attention in primate neocortex	*Ph.D. Thesis*
	Zirnsak M, **Steinmetz NA**, Noudoost B, Xu K, Moore T Visual space is compressed in prefrontal cortex before eye movements	*Nature*
2010	**Steinmetz NA**, Moore T Changes in the Response Rate and Response Variability of Area V4 Neurons During the Preparation of Saccadic Eye Movements	*J. of Neurophys*

2009 Aton SJ, Seibt J, Dumoulin M, Jha SK, **Steinmetz N**, Coleman T, Naidoo N, Frank MG — *Neuron*
Mechanisms of Sleep-Dependent Consolidation of Cortical Plasticity

2008 Liu X, **Steinmetz NA**, Farley AB, Smith CD, Joseph JE — *J. of Cog Neurosci*
Mid-fusiform activation during object discrimination reflects the process of differentiating structural descriptions

2006 Joseph JE, Cerullo MA, Farley AB, **Steinmetz NA**, Mier CR — *Neuroimage*
fMRI correlates of cortical specialization and generalization for letter processing

Joseph JE, Powell DK, Andersen AH, …, **Steinmetz NA**, Zhang Z — *J. of Neurosci Methods*
fMRI in alert, behaving monkeys: an adaptation of the human infant familiarization novelty preference procedure

2005 Jha SK, Jones BE, Coleman T, **Steinmetz N**, …, Frank MG — *J. of Neurosci*
Sleep-Dependent Plasticity Requires Cortical Activity

Reviews and Commentary

2017 Steinmetz NA, Harris KD, Carandini M — *Curr Op in Neurobiology (in prep)*
Large-scale electrophysiology with Neuropixels probes

2012 Squire RF*, **Steinmetz NA***, Moore T — *Scholarpedia*
Frontal Eye Fields

Steinmetz NA, Moore T — *Neuron*
Lumping and splitting the neural circuitry of visual attention

2010 Noudoost B, Chang MH, **Steinmetz NA**, Moore T — *Curr Op in Neurobiology*
Top-down control of visual attention

Fellowships and Awards

2016 – pres.	Postdoctoral Fellowship from the Marie Curie Action of the EU
2015 – 2016	Postdoctoral Fellowship from the Human Frontier Sciences Program
2015	Newton Postdoctoral Fellowship from the Royal Society (awarded)
2011 – 2014	Graduate Research Fellowship from National Science Foundation (NSF GRFP)
2009 – 2011	Graduate Research Fellowship from the Stanford Center for Mind, Brain, and Computation, National Science Foundation, Integrative Graduate Education Research Traineeship (NSF IGERT)
2006 –2007	Blair Fellowship for Undergraduate Research in Bioengineering/Biomedical Sciences from the University of Pennsylvania
2005 –2007	University Scholars Fellowship for Undergraduate Research from the University of Pennsylvania

Invited Talks

2017 Nov	SfN Neuropixels Satellite Session, Washington, DC
2017 Oct	Kavli Futures Symposium: Neurotechnology, Santa Monica, CA
2017 Sept	NIH Neurotechnology Seminar, Bethesda, MD
2017 July	Computational Neuroscience Society, Antwerp, Belgium
2017 July	Champalimaud Centre for the Unknown, Lisbon, Portugal
2017 June	International Conference for Advanced Neurotechnology, Freiburg, Germany
2016 Nov	Institute of Opthalmology, University College London, London, UK
2015 Nov	Neuroseeker Data Workshop, Nijmegen, Netherlands

Other Training

2012	FENS-IBRO-Hertie Winter School on "Neural Coding in Sensory Systems", Obergurgl, Austria
2009	"Methods in Computational Neuroscience", Woods Hole, MA, USA

Teaching Activities

2017	Teaching Assistant for Cajal Course "Interacting with Neural Circuits", Champalimaud Centre, Lisbon, Portugal
2017	Course organizer and lecturer for Neuropixels Training Course, University College London
2015 – pres.	Mentor for graduate student Peter Zatka-Haas on the project "Manipulation of neural circuitry underlying visually-guided decision making in mice", University College London
2014	Mentor for rotating graduate student Isaac Kauvar on the project "Methods for computing cross-areal coherence in the primate visual system", Stanford University
2012	Teaching Assistant, *Large-scale neural models*, with Dr. Kwabena Boahen, Stanford University
2011	Teaching Assistant, *Computational Neuroscience*, with Dr. John Huguenard, Stanford University
2009	Teaching Assistant, *Information and Signaling in Neurons and Networks*, with Dr. Richard Tsien and Dr. Stephen Baccus, Stanford University
2008	Teaching Assistant, "Stanford Intensive Neuroscience" graduate program boot camp

Conference Presentations

Steinmetz NA, Zatka-Haas P, Carandini M, Harris KD. Neuronal populations supporting vision, action, and reward across the mouse brain. Poster at Society for Neuroscience 2017, Washington, DC.

Steinmetz NA, Carandini M, Harris KD. Distributed neuronal populations supporting vision, action, and reward across the mouse brain. Poster at International Conference for Advanced Neurotechnology 2017, Freiburg, Germany.

Steinmetz NA, Pachitariu M, Burgess CP, Rossant C, Harris T, Carandini M, Harris KD. Recording large, distributed neuronal populations with next-generation electrode arrays in behaving mice. Poster at Society for Neuroscience 2016, San Diego, CA.

Steinmetz NA, Pachitariu M, Rossant C, Hunter MLD, Neto JP, Kampff A, Carandini M, Harris KD. Neuropixels and Kilosort: 384-channel recordings in awake mice and improved spike-sorting software. Poster at International Conference for Advanced Neurotechnology 2016, Ann Arbor, MI.

Steinmetz NA, Burgess CP, Kadir SN, Rossant C, Goodman DFM, Hunter MLD, Carandini M, Harris KD. Neural correlates of visually-guided behavior in mouse cingulate cortex. Poster at Society for Neuroscience 2015, Chicago, IL.

Steinmetz NA, Kadir SN, Rossant C, Goodman DFM, Hunter MLD, Carandini M, Harris KD. Next-generation microelectrode arrays for probing the neocortical circuits underlying visually-guided behavior. Poster at Brain Informatics and Health 2015, London, UK. * Awarded Best Poster.

Steinmetz NA, Moore T. Circuits underlying covert attention and saccade preparation within the primate frontal eye field. Poster at FENS Brain Conference on Controlling Neurons, Circuits, and Behavior 2014, Copenhagen, Denmark.

Steinmetz NA, Moore T. Circuits underlying covert attention and saccade preparation within the primate frontal eye field. Poster at Society for Neuroscience 2014, Washington, D.C.

Engel T, **Steinmetz NA**, Moore T, Boahen K. Effects of attention on spatio-temporal correlations across layers of a single column in area V4. Poster at Computational and Systems Neuroscience (Cosyne) Conference 2013, Salt Lake City, UT.

Steinmetz NA, Benjamin BV, Boahen K. NMDA-mediated feedback accounts for effects of visual spatial attention in Neurogrid simulations. Poster at Computational and Systems Neuroscience (Cosyne) Conference 2013, Salt Lake City, UT.

Steinmetz NA, Moore T. Simultaneous measurement of visual response modulation across cortical layers in area V4 during covert attention and saccade preparation. Poster at Society for Neuroscience 2012, New Orleans, LA.

Steinmetz NA, Moore T. Pattern of attentional and presaccadic modulation of visual responses in macaque V4 measured simultaneously across cortical layers. Poster at Computational and Systems Neuroscience (Cosyne) Conference 2012, Salt Lake City, UT.

Steinmetz NA, Moore T. Pattern of attentional and presaccadic modulation of visual responses in macaque V4 measured simultaneously across cortical layers. Poster at FENS-IBRO Winter School: Neural Coding in Sensory Systems 2012, Obergurgl, Austria.

Steinmetz NA, Moore T. Pattern of presaccadic modulation of visual responses in macaque V4 measured simultaneously across cortical layers. Poster at Society for Neuroscience 2011, Washington, D.C.

Benjamin B, McQuinn E, Gao P, Choudhary S, **Steinmetz NA**, Moore T, Boahen K. Simulating a Two-Cortical Area Model of Top-Down Attention on Neurogrid. Poster at NIH Pioneer Conference 2011, Washington, D.C.

Merolla P, Arthur J, Benjamin B, Neil D, Elassaad S, **Steinmetz NA**, Moore T, Boahen K. Simulating Cortical Neuron Populations in Real-Time on the Neurogrid Desktop Supercomputer. Poster at NIH Pioneer Conference 2010, Washington, D.C.

Steinmetz NA, Moore T. (2010) Changes in the Response Rate and Response Variability of Area V4 Neurons During the Preparation of Saccadic Eye Movements. Poster at Computational and Systems Neuroscience (Cosyne) Conference 2010, Salt Lake City, UT.

Steinmetz NA, Moore T. (2008) A Signature of Eye Movement Preparation in the Response Variability of Area V4 Neurons. Poster at Dynamical Neuroscience XVI, Washington D.C.