

CURRICULUM VITÆ

Máté Lengyel

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Central European University
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EDUCATION

- 2000–2003 Ph.D., Behavioral Neuroscience Program, Doctoral School of Biology, Faculty of Sciences, Eötvös Loránd University (Budapest, Hungary)
- 1998–2000 M.Sc., Cell, Developmental and Neurobiology Program, Faculty of Sciences, Eötvös Loránd University (Budapest, Hungary)

PROFESSIONAL HISTORY

- 2018– Senior Research Fellow, Churchill College, University of Cambridge
- 2017– Professor of Computational Neuroscience, Department of Engineering, University of Cambridge
- 2017– Senior Research Fellow, Department of Cognitive Science, Central European University
- 2012–2017 Reader in Computational Neuroscience, Department of Engineering, University of Cambridge
- 2012–2017 Visiting Researcher, Department of Cognitive Science, Central European University
- 2007–2012 Lecturer in Computational Neuroscience, Department of Engineering, University of Cambridge
- 2007 Visiting Research Fellow, Collegium Budapest Institute for Advanced Study
- 2004–2006 Postdoctoral Research Fellow, Gatsby Computational Neuroscience Unit, University College London
- 2003–2004 Research Associate, Institute for Particle and Nuclear Physics, Hungarian Academy of Sciences

OTHER APPOINTMENTS AND AFFILIATIONS

Memberships in professional bodies

- 2011– British Neuroscience Association
- 2004– Society for Neuroscience
- 2000– Hungarian Neuroscience Society

Invited professorships

- 2011–2012 Central European University (8 months)
- 2010 École Normale Supérieure (1 month)

Membership in advisory bodies

- 2017– International Brain Lab Advisory Board (Member)
- 2016–2019 Wellcome Trust Cellular and Molecular Neuroscience Expert Review Group (Member)
- 2012–2016 FENS/IBRO Advanced / Cajal Course on Computational Neuroscience (Director)
- 2011–2013 Computational and Systems Neuroscience (Programme Committee)
- 2012 Neural Information Processing Systems (Workshop Chair)
- 2010–2011 Neural Information Processing Systems (Programme Committee)

AWARDS

- 2001 Dean's List, Eötvös Loránd University (Budapest, Hungary)
- 2000 Scholarship of the Republic of Hungary
- 2000 Dean's List, Eötvös Loránd University (Budapest, Hungary)
- 1999 Scholarship of the Republic of Hungary
- 1999 2nd prize, National Scientific Competition, Neurobiology II, Hungary
- 1998 1st prize, University Scientific Competition, Eötvös Loránd University (Budapest, Hungary)

PUBLICATIONS

Peer-reviewed papers

- Gáspár ME, Polack PO, Golshani P, **Lengyel M**, Orbán G (2019) Representational untangling by the firing rate nonlinearity in V1 simple cells. *eLife* 8:e43625.
- Lengyel G, Žalalyté G, Pantelides A, Ingram JN, Fiser J*, **Lengyel M***, Wolpert DM* (2019) Unimodal statistical learning produces multimodal object-like representations. *eLife* 8:e43942. *equal contributions
- Ujfalussy BB, Makara JK, **Lengyel M***, Branco T* (2018) Global and multiplexed dendritic computations under *in vivo*-like conditions. *Neuron* 100:579–592. *equal contributions
- Hennequin G, Ahmadian Y, Rubin DB, **Lengyel M***, Miller KD* (2018) The dynamical regime of sensory cortex: stable dynamics around a single stimulus-tuned attractor account for patterns of noise variability. *Neuron* 98:846–860. *equal contributions
- Aitchison L, **Lengyel M** (2017) With or without you: predictive coding and Bayesian inference in the brain. *Curr Opin Neurobiol* 46:219–227.
- Aitchison L, **Lengyel M** (2016) The Hamiltonian brain: efficient probabilistic inference with excitatory-inhibitory neural circuit dynamics. *PLoS Comput Biol* 12:e1005186.
- Orbán G, Berkes P, Fiser J, **Lengyel M** (2016) Neural variability and sampling-based probabilistic representations in the visual cortex. *Neuron* 92:530–543.
- Yang SC, Wolpert DM*, **Lengyel M*** (2016) Theoretical perspectives on active sensing. *Curr Opin Behav Sci* 11:100–108. *equal contributions
- Yang SC, **Lengyel M***, Wolpert DM* (2016) Active sensing in the categorization of visual patterns. *eLife* 5:e12215. *equal contributions
- Csibra G, Hernik M, Mascaro O, Tatone D, **Lengyel M** (2016) Statistical treatment of looking-time data. *Dev Psychol* 52:521–36.

- Friedrich J, **Lengyel M** (2016) Goal-directed decision making with spiking neurons. *J Neurosci* 36:1529–46.
- Ujfalussy BB, Makara JK, Branco T, **Lengyel M** (2015) Dendritic nonlinearities are tuned for efficient spike-based computations in cortical circuits. *eLife* 4:e10056.
- Savin C, Dayan P, **Lengyel M** (2014) Optimal recall from bounded metaplastic synapses: predicting functional adaptations in hippocampal area CA3. *PLoS Comput Biol* 10:e1003489.
- Houlsby NMT, Huszár F, Ghassemi MM, Orbán G, Wolpert DM*, **Lengyel M*** (2013) Cognitive tomography reveals complex, task-independent mental representations. *Curr Biol* 23:2169–2175. *equal contributions
- Berkes P, Orbán G, **Lengyel M***, Fiser J* (2011) Spontaneous cortical activity reveals hallmarks of an optimal internal model of the environment. *Science* 331:83–87. *equal contributions
- Pfister JP, Dayan P, **Lengyel M** (2010) Synapses with short-term plasticity are optimal estimators of presynaptic membrane potentials. *Nat Neurosci* 13:1271–1275.
- Remme MWH, **Lengyel M**, Gutkin BS (2010) Democracy-independence trade-off in oscillating dendrites and its implications for grid cells. *Neuron* 66:429–437.
- Fiser J, Berkes B, Orbán G, **Lengyel M** (2010) Statistically optimal perception and learning: from behavior to neural representations. *Trends Cogn Sci* 14:119–130.
- Remme MWH, **Lengyel M**, Gutkin BS (2009) The role of ongoing dendritic oscillations in single-neuron dynamics. *PLoS Comput Biol* 5:e1000493.
- Orbán G, Fiser J, Aslin RN, **Lengyel M** (2008) Bayesian learning of visual chunks by human observers. *Proc Natl Acad Sci USA* 105:2745–2750.
- Lengyel M**, Kwag J, Paulsen O, Dayan P (2005) Matching storage and recall: hippocampal spike timing-dependent plasticity and phase response curves. *Nat Neurosci* 8:1677–1683.
- Huhn Z, Orbán G, Érdi P, **Lengyel M** (2005) Theta oscillation-coupled dendritic spiking integrates inputs on a long time scale. *Hippocampus* 15:950–962.
- Lengyel M**, Huhn Z, Érdi P (2005) Computational theories on the function of theta oscillations. *Biol Cybern* 92:393–408.
- Lengyel M**, Érdi P (2004) Theta modulated feed-forward network generates rate and phase coded firing in the entorhino-hippocampal system. *IEEE Trans Neural Netw* 15:1092–1099.
- Zalányi L, Csárdi G, Kiss T, **Lengyel M**, Warner R, Tobochnik J, Érdi P (2003) Properties of a random attachment growing network. *Phys Rev E* 68:066104.
- Lengyel M**, Szatmáry Z, Érdi P (2003) Dynamically detuned oscillations account for the coupled rate and temporal code of place cell firing. *Hippocampus* 13:700–714.
- Orbán G, Kiss T, **Lengyel M**, Érdi P (2001) Hippocampal rhythm generation: gamma-related theta-frequency resonance in CA3 interneurons. *Biol Cybern* 84:123–132.

Invited commentary

- Echeveste R, **Lengyel M** (2018) The redemption of noise: inference with neural populations. *Trends Neurosci* 41:767–770.
- Latham PE, **Lengyel M** (2008) Phase coding: spikes get a boost from local fields. *Curr Biol* 18:R349–351.

Refereed conference proceedings

- Bernacchia A, **Lengyel M**, Hennequin G (2018) Exact natural gradient in deep linear networks and its application to the nonlinear case. In: *Advances in Neural Information Processing Systems 31* (Bengio S, Wallach H, Larochelle H, et al., eds.), Curran Associates, Inc., pp 5941–5950.
- McNamee D, Wolpert DM, **Lengyel M** (2016) Efficient state-space modularization for planning: theory, behavioral and neural signatures. In: *Advances in Neural Information Processing Systems 29* (Lee DD, Sugiyama M, Luxburg UV, et al., eds.), Curran Associates, Inc., pp 4511–4519.
- Festa D, Hennequin G, **Lengyel M** (2014) Analog memories in a balanced rate-based network of E-I neurons. In: *Advances in Neural Information Processing Systems 27* (Ghahramani Z, Welling M, Cortes C, et al., eds.), Curran Associates, Inc., pp 2231–2239.
- Hennequin G, Aitchison L, **Lengyel M** (2014) Fast sampling-based inference in balanced neuronal networks. In: *Advances in Neural Information Processing Systems 27* (Ghahramani Z, Welling M, Cortes C, et al., eds.), Curran Associates, Inc., pp 2240–2248.
- Tootonian S, **Lengyel M** (2014) A dual algorithm for olfactory computation in the locust brain. In: *Advances in Neural Information Processing Systems 27* (Ghahramani Z, Welling M, Cortes C, et al., eds.), Curran Associates, Inc., pp 2276–2284.
- Savin C, Dayan P, **Lengyel M** (2013) Correlations strike back (again): the case of associative memory retrieval. In: *Advances in Neural Information Processing Systems 26* (Burgess C, Bottou L, Welling M, et al., eds.), pp 288–296.
- Ujfalussy BB, **Lengyel M** (2011) Active dendrites: adaptation to spike-based communication. In: *Advances in Neural Information Processing Systems 24* (Shawe-Taylor J, Zemel R, Bartlett P, et al., eds.), pp 1188–1196.
- Savin C, Dayan P, **Lengyel M** (2011) Two is better than one: distinct roles for familiarity and recollection in retrieving palimpsest memories. In: *Advances in Neural Information Processing Systems 24* (Shawe-Taylor J, Zemel R, Bartlett P, et al., eds.), pp 1305–1313.
- Huszár F, Noppeney U, **Lengyel M** (2010) Mind reading by machine learning: a doubly Bayesian method for inferring mental representations. In: *Proceedings of the Thirty-Second Annual Conference of the Cognitive Science Society*. pp 2810–2815.
- Pfister JP, Dayan P, **Lengyel M** (2009) Know thy neighbour: a normative theory of synaptic depression. In: *Advances in Neural Information Processing Systems 22* (Bengio Y, Schuurmans D, Lafferty J, et al., eds.), Cambridge, MA: MIT Press, pp 1464–1472.
- Lengyel M**, Dayan P (2008) Hippocampal contributions to control: the third way. In: *Advances in Neural Information Processing Systems 20* (Platt JC, Koller D, Singer Y, et al., eds.), Cambridge, MA: MIT Press, pp 889–896.
- Lengyel M**, Dayan P (2007) Uncertainty, phase and oscillatory hippocampal recall. In: *Advances in Neural Information Processing Systems 19* (Schölkopf B, Platt J, Hoffman T, eds.), Cambridge, MA: MIT Press, pp 833–840.
- Orbán G, Fiser J, Aslin RN, **Lengyel M** (2006) Learning objects by learning models: finding independent causes and preferring simplicity. In: *Proceedings of the Twenty-Eighth Annual Conference of the Cognitive Science Society* (Sun R, ed.), Cognitive Science Society, pp 645–650.
- Orbán G, Fiser J, Aslin RN, **Lengyel M** (2006) Bayesian model learning in human visual perception. In: *Advances in Neural Information Processing Systems 18* (Weiss Y, Schölkopf B, Platt J, eds.), Cambridge, MA: MIT Press, pp 1043–1050.
- Lengyel M**, Dayan P (2005) Rate- and phase-coded autoassociative memory. In: *Advances in Neural Information Processing Systems 17* (Saul LK, Weiss Y, Bottou L, eds.), Cambridge, MA: MIT Press, pp 769–776.

- Huhn Z, **Lengyel M**, Orbán G, Érdi P (2005) Dendritic spiking accounts for rate and phase coding in a biophysical model of a hippocampal place cell. *Neurocomputing* 65-66:331–341.
- Papp G, Huhn Z, **Lengyel M**, Érdi P (2004) Effects of dendritic location and different components of LTP expression on the firing activity of hippocampal ca1 pyramidal cells. *Neurocomputing* 58-60:692–697.
- Kiss T, Orbán G, **Lengyel M**, Érdi P (2001) Intrahippocampal gamma and theta rhythm generation in a network model of inhibitory interneurons. *Neurocomputing* 38-40:713–719.
- Misják F, **Lengyel M**, Érdi P (2001) Episodic memory and cognitive map in a rate model network of the rat hippocampus. *Lect Notes Comput Sci* 2130:1135–1140.
- Lengyel M**, Kepecs Á, Érdi P (1999) Location-dependent differences between somatic and dendritic IPSPs. *Neurocomputing* 26–27:193–197.
- Bazsó F, Kepecs Á, **Lengyel M**, Payrits S, Szalisznyó K, Zalányi L, Érdi P (1999) Single cell and population activities in cortical-like systems. *Rev Neurosci* 10:201–212.

Book chapters

- Remme MWH, **Lengyel M**, Gutkin BS (2012) A theoretical framework for the dynamics of multiple intrinsic oscillators in single neurons. In: *Phase response curves in neuroscience: theory, experiment, and analysis* (Schultheiss NW, Prinz AA, Butera RJ, eds.), Springer, pp 53–72.
- Érdi P, **Lengyel M** (2003) Matematikai modellek az idegrendszer-kutatásban. In: *Kognitív idegtudomány* (Pléh C, Kovács G, Gulyás B, eds.), Budapest: Osiris, pp 126–148.

GRANTS

- 2019–2025 Wellcome Trust Investigator Award in Science, *Uncertainty in the hippocampus*, **£1,140,205**
sole PI
- 2018–2021 HFSP Research Grant, *Fusion of evidence and expectation: untangling stimulus and prior information in the visual cortex*, **\$1,350,000** (Lengyel’s share: **\$337,500**)
co-PIs: Gergő Orbán (MTA Wigner Research Centre for Physics, Hungary), Peyman Golshani (University of California, Los Angeles, USA) and Wolf Singer (Ernst Strüngmann Institute for Neuroscience, Germany)
- 2017–2022 ERC Consolidator Grant, *Cognitive tomography of mental representations*, **€1,170,000**
sole PI
- 2011–2019 Wellcome Trust New Investigator Award, *Normative neurophysiology*, **£990,000**
sole PI
- 2012–2014 EU FP7 ICT Collaborative Grant, *Brain-inspired multiscale computation in neuromorphic hybrid systems – enlarged EU*, **€700,000** (Lengyel’s share: **€126,000**)
9 collaborative partners
- 2008–2011 Wellcome Trust Project Grant, *Spike timing-based memory in the hippocampus*, **£345,000**
(Lengyel’s share: **£150,000**)
co-PIs: Peter Dayan (University College London, United Kingdom) and Ole Paulsen (University of Oxford, United Kingdom)
- 2006–2007 NWO – British Council Partnership Programme in Science, **£1,120**, + **€1,600** (Lengyel’s share: **£1,120**)
co-PI: Francesco Battaglia (University of Amsterdam, The Netherlands)
- 2006 British Council Franco-British Alliance Programme, **£2,300**, + **€3000** (Lengyel’s share: **£1,500**)
co-PIs: Peter Dayan (University College London, United Kingdom) and Boris Gutkin (École Normale Supérieure, France)

SELECTED INVITED LECTURES

2019	Seminar	Center for Theoretical Neuroscience, Columbia University, New York, USA
2019	Talk	ELLIS Workshop on “Natural intelligence”, Berlin, Germany
2019	Plenary	Conference on Cognitive Computational Neuroscience, Berlin, Germany
2019	Talk	Marr Meeting, Cambridge, UK
2019	Talk	Gatsby Birthday Symposium, London, UK
2019	Plenary	Barcelona Computational, Cognitive and Systems Neuroscience Meeting, Barcelona, Spain
2019	Plenary	XI. Dubrovnik Conference on Cognitive Science, Dubrovnik, Croatia
2019	Talk	Workshop on “Predictive processing”, London, UK
2019	Talk	Workshop on “Predictive coding, inference and unsupervised learning”, Paris, France
2018	Seminar	MRC Cognition and Brain Unit, Cambridge, UK
2018	Talk	Decision Summit, Cambridge, UK
2018	Plenary	14th Biannual Conference of the German Society for Cognitive Science, Darmstadt, Germany
2018	Talk	1st International Workshop on Predictive Processing, San Sebastián, Spain
2018	Seminar	Center for Theoretical Neuroscience, Columbia University, New York, USA
2018	Seminar	Mortimer Zuckerman Mind Brain Behavior Institute, Columbia University, New York, USA
2018	Plenary	Computational and Systems Neuroscience Meeting, Denver, CO, USA
2017	Talk	Workshop on “The challenge to learn”, Hyderabad, Telangana, India
2017	Talk	Workshop on “Neural implementation of learning models”, Lausanne, Switzerland
2017	Seminar	Emory University, Atlanta, GA, USA
2017	Plenary	Austrian Neuroscience Association Meeting, Vienna, Austria
2017	Seminar	Bernstein Workshop on “The Neural Code”, Göttingen, Germany
2017	Seminar	Bernstein Workshop on “Neural Sampling”, Göttingen, Germany
2017	Seminar	The Crick Institute, London, UK
2017	Seminar	Research Centre for Natural Sciences, Hungarian Academy of Sciences
2017	Talk	Cosyne Workshop on “Error-based learning in short-term and episodic memory”
2017	Seminar	Gatsby Computational Neuroscience Unit, UCL, UK
2016	Seminar	Laboratory of Molecular Biology, Cambridge, UK
2016	Seminar	University of Lancaster, UK
2016	Talk	Conference on “Information, Control, and Learning”, Hebrew University, Israel
2016	Plenary	Bernstein Conference, Berlin, Germany
2016	Talk	Bernstein Workshop on “Active dendrites”, Berlin, Germany
2016	Seminar	Champalimaud Centre for the Unknown, Lisbon, Portugal
2016	Keynote	Bristol University Wellcome Trust Neural Dynamics Retreat, UK
2016	Seminar	Faculty Seminar, Humanities & Social Sciences, Caltech, USA
2016	Talk	Cosyne Workshop on “Coding, correlations and the dimensionality of neural activity”
2015	Seminar	Centre for Neural Circuits and Behaviour, University of Oxford, UK
2015	Seminar	Swartz Seminar, Center for Neural Science, New York University, USA
2015	Talk	Workshop on “Probabilistic Inference and the Brain”, Paris, France
2015	Keynote	Memory Disorders Society Meeting, Cambridge, UK
2015	Talk	Swartz Workshop, HHMI Janelia Research Campus, USA
2015	Talk	Workshop on “Adaptive Brains and Machines”, University of Cambridge, UK
2015	Talk	Bernstein “Sparks” Workshop, Max Planck Institute, Tübingen, Germany
2015	Talk	Workshop on “Plasticity and Learning”, Paris, France

2015 Seminar Wellcome Trust Centre for Neuroimaging, UCL, London, UK
 2015 Talk Gordon Research Conference on “Dendrites”, USA
 2015 Seminar Wigner Institute, Hungarian Academy of Sciences
 2014 Talk Workshop on “Stochastic Neural Computation”, Paris, France
 2014 Seminar University of Birmingham
 2014 Seminar Institute for Science and Technology, Austria
 2014 Seminar University of Edinburgh
 2014 Seminar ETH & University Zürich, Switzerland
 2014 Talk Osnabrück Computational Cognition Alliance Meeting, Osnabrück, Germany
 2014 Seminar Imperial College London
 2014 Talk Cosyne Workshop on “Noise correlations in the cortex”
 2014 Seminar Foster Talk, Dept. Physiol, Development and Neuroscience, University of Cambridge, UK
 2013 Seminar Friedrich Miescher Institute for Biomedical Research, Basel, Switzerland
 2013 Seminar MPI for Brain Research, Frankfurt, Germany
 2013 Talk Workshop on “Dynamics of cortical and cortical-subcortical circuits”, HHMI Janelia Farm, USA
 2013 Seminar MRC Cognition and Brain Unit, Cambridge, UK
 2013 Seminar Gatsby Computational Neuroscience Unit, UCL, London, UK
 2013 Seminar University of Sheffield
 2013 Talk Cosyne Workshop on “Dendritic computation in neural circuits”
 2013 Plenary Budapest CEU Conference on Cognitive Development, Budapest, Hungary
 2012 Talk Neural Computation: From Perception to Cognitive Function, Berlin, Germany
 2012 Plenary Bernstein Conference, Munich, Germany
 2012 Talk 28th Symposium of the Center for Visual Science, Rochester University, USA
 2012 Seminar University of Bristol, UK
 2012 Seminar University of Warwick, UK
 2012 Talk Workshop on “Dendrites: Substrates for Information Processing”, HHMI Janelia Farm, USA
 2012 Seminar University of Bern, Switzerland
 2012 Seminar University of Sussex, UK
 2011 Seminar University of Manchester, UK
 2011 Talk Workshop on “Learning and Plasticity”, Marseille, France
 2011 Talk European Biophysics Congress, Budapest, Hungary
 2011 Seminar Imperial College, UK
 2011 Seminar Cortex Club, University of Oxford, United Kingdom
 2011 Plenary Mathematical Neuroscience Meeting, Edinburgh, UK
 2011 Talk Cosyne workshop on “Perception, action, and learning”
 2010 Seminar Institute of Experimental Medicine, Budapest, Hungary
 2010 Seminar Research Institute for Particle and Nuclear Physics, Budapest, Hungary
 2010 Seminar Brandeis University, USA
 2010 Seminar Psychometrics Centre, University of Cambridge, UK
 2010 Seminar Central European University, Budapest, Hungary
 2010 Seminar École Normale Supérieure, France
 2010 Keynote MRC Anatomical Neuropharmacology Unit Science Day, UK
 2010 Panel Workshop on “Grid Cells: Formation and Function”, London, UK
 2010 Talk Workshop on “From Molecules to Code”, Vienna, Austria

- 2010 Talk “Neurocomp Marseille” Workshop, France
- 2010 Seminar Gatsby Computational Neuroscience Unit, UCL, UK
- 2010 Seminar Birkbeck College, UK
- 2010 Lectures Ararat Memory Meeting, Yerevan, Armenia
- 2009 Panel NIPS workshop on “Bounded-rational analyses of human cognition”
- 2009 Talk NIPS workshop on “Bayesian models, approximate inference, and the brain”
- 2009 Talk Bernstein Conference, Student Symposium, Frankfurt, Germany
- 2009 Talk Biowire09 Symposium, University of Cambridge, UK
- 2009 Seminar University of Edinburgh, UK
- 2009 Seminar Dept. of Experimental Psychology, University of Cambridge, UK
- 2009 Seminar MRC Cognition and Brain Unit, Cambridge, UK
- 2008 Talk NIPS workshop on Machine Learning Meets Human Learning
- 2008 Seminar École Polytechnique Fédérale de Lausanne, Switzerland
- 2008 Talk Workshop on “Networks and Neuroscience”, University of Cambridge
- 2008 Talk FENS Symposium on “Sleep, off-line reactivation and memory consolidation”
- 2007 Seminar Center for Neural Science, New York University, USA
- 2006 Talk CNS Workshop on “Functional Models of the Hippocampal Formation”
- 2006 Talk CNS Workshop on “Phase Response Curves: Where Theory and Experiments Intersect”
- 2006 Seminar University of Amsterdam, The Netherlands
- 2006 Seminars University of California, Berkeley, USA
- 2006 Seminar Northwestern University, USA
- 2006 Seminar University of Rochester, USA
- 2006 Seminar University of Toronto, Canada
- 2005 Seminar Collège de France, France
- 2004 Seminar University of Oxford, UK

SUPERVISION

Postgraduate students

- 2018– Daniel Acosta-Kane, MPhil (University of Cambridge)
- 2017– Tamás Kovács, PhD (Central European University)
- 2016– Ádám Koblinger, PhD (Central European University) – secondary supervisor, primary: József Fiser
- 2016–2017 Brian Trippe, MPhil (University of Cambridge)
Kellett Fellow
- 2015–2016 David Zoltowski, MPhil (University of Cambridge)
Churchill Scholar, now PhD student at Princeton University
- 2014– Gábor Lengyel, PhD (Central European University) – secondary supervisor, primary: József Fiser
- 2014– Oana Stanciu, PhD (Central European University) – secondary supervisor, primary: József Fiser
- 2014–2015 Ryutaro Tanno, MPhil (University of Cambridge)
now PhD student at University College London
- 2014–2015 Alexander Greaves Tunnell, MPhil (University of Cambridge) – co-supervised with Richard Turner
Herchel Smith Fellow, now PhD student at the University of Washington
- 2012–2016 Yan Wu, PhD (University of Cambridge)
now research scientist at Google DeepMind

- 2012–2016 Dylan Festa, PhD (University of Cambridge)
now postdoc at Albert Einstein College
- 2011–2012 DJ Strouse, MPhil (University of Cambridge)
Churchill Scholar, now PhD student at Princeton University on a Hertz Fellowship
- 2010–2014 Neil Houlsby, PhD (University of Cambridge) – co-supervised with Zoubin Ghahramani
Google Europe Fellowship in Statistical Machine Learning, now researcher at Google Zurich
- 2010–2011 Jonathan O’Keeffe, MSc (UCL)
now Wellcome Trust Clinical Fellow, University College London
- 2010–2011 Jakob Foerster, MSc (University of Cambridge)
distinction, now PhD student at Department of Computer Science, University of Oxford
- 2010–2011 Laurence Aitchison, MSc (University of Cambridge)
distinction, PhD student at Gatsby Unit, University College London, now postdoc in CBL, Department of Engineering, University of Cambridge, University of Cambridge
- 2009–2010 Mark Ioffe, MSc (University of Cambridge)
now PhD student at Princeton
- 2009–2010 Robin Brown, MSc (University of Cambridge)
distinction
- 2007–2009 Ferenc Huszár, MSc (Budapest University of Technology and Economics)
distinction and 1st prize + special prize for the most valuable scientific achievement at the Hungarian national competition for undergraduate research
External Research Fellowship from Trinity College, University of Cambridge
now researcher at Twitter

Postdoctoral fellows

- 2019– Jake Stroud
received Sir Henry Wellcome Postdoctoral Fellowship from the Wellcome Trust to work in the group
- 2018– Marcello Mattar
received Newton International Fellowships from the Royal Society to work in the group
starting assistant professorship at University of California, San Diego in 2020
- 2018– Yul Kang
received Junior Research Fellowship from Wolfson College, Cambridge
- 2016–2019 Alberto Bernacchia
now Senior Deep Learning Researcher at MediaTek
- 2016–2019 Laurence Aitchison
now Senior Lecturer at University of Bristol
- 2016–2019 Rodrigo Echeveste
now Assistant Researcher at the National Scientific and Technical Research Council of Argentina
- 2016–2018 Greg Sotiropoulos – co-supervised with Daniel Wolpert
- 2015–2017 Daniel McNamee – co-supervised with Daniel Wolpert
received Sir Henry Wellcome Postdoctoral Fellowship from the Wellcome Trust to work in the group
- 2014–2016 David Barrett
now research scientist at Google DeepMind
- 2012–2016 Scott Cheng-Hsin Yang – co-supervised with Daniel Wolpert
now postdoc at Rutgers University
- 2013–2015 Johannes Friedrich
received SNF Fellowship to work in the group
now research scientist at Flatiron Institute (Simons Foundation)

- 2012–2015 Guillaume Hennequin
received SNF Fellowship to work in the group
now lecturer at University of Cambridge
- 2012–2015 Sina Tootoonian
now postdoc at the Crick Institute
- 2011–2013 Balázs Ujfalussy
received Marie Curie Fellowship to work in the group
now postdoc at the Institute of Experimental Medicine, Budapest
- 2010–2013 Cristina Savin
received ISTFELLOW fellowship at IST Austria
now assistant professor at New York University
- 2008–2010 Jean-Pascal Pfister
received Ambizione grant and an SNF Professorship from the Swiss National Science Foundation
now professor at University of Bern and the Institute for Neuroinformatics (ETHZ / University of Zürich)
- 2006–2008 Gergő Orbán – co-supervised with József Fiser and Daniel Wolpert
- 2010–2012 now group leader at Wigner Institute, Budapest, on a Momentum grant from the Hungarian Academy of Sciences

EXAMINING

- 2019 David Hoppe, Technical University of Darmstadt
- 2018 Charles Findling, École Normale Supérieure
- 2015 Francisco Javier Hernandez Heras, PhD, University of Cambridge
- 2015 Péter Friedrich, MSc, Pázmány Péter Catholic University
- 2013 Diana Burk, MPhil, University of Cambridge
- 2012 Danilo Jimenez Rezende, PhD, Ecole Polytechnique Fédérale de Lausanne
- 2012 Edward Turnham, PhD, University of Cambridge
- 2011 Francisco Javier Hernandez Heras, MPhil, University of Cambridge
- 2011 Thomas Akam, PhD, University College London
- 2008 Gediminas Luksys, PhD, Ecole Polytechnique Fédérale de Lausanne

TEACHING

University of Cambridge

Lecturing	years taught*	lectures / year*	other duties*
<i>Engineering</i>			
2P8: Engineering for the Life Sciences	2010–	3.5 (4 in 2010)	Assessor
3G2: Mathematical Physiology	2008–	5 (4 in 2008–2010)	Second Assessor
3G3: Introduction to Neuroscience	2008–	8 (4 in 2008)	Second Assessor
4G3: Computational Neuroscience	2008–	10	Principal Assessor
Exposition	2008–2010	16	
*excluding sabbaticals and sabbatical covers			
<i>Other departments</i>			
Part II Neuroscience	2010–	4	Assessor

Project supervision	years	total number of students
<i>Engineering</i>		
Supervisor	2008–	11 students
Assessor	2008–	12 students
<i>Other departments (Neuroscience, Physics, Systems Biology)</i>		
Supervisor	2009–	7 students
Administrative duties		
<i>Engineering</i>		
Open Day coordinator (teaching groups F & G)	2009–2016	
Library Committee (Div F representative)	2010–	
Subject Group Chair (Bioengineering)	2015–2016	
Subject Group Secretary (Bioengineering)	2018–	

International summer courses

2019	FENS/IBRO Cajal Course in Computational Neuroscience, Lisbon, Portugal
2018	FENS/IBRO Cajal Course in Computational Neuroscience, Lisbon, Portugal
2018	IBRO Simons South African Computational Neuroscience Imbizo, Cape Town, South Africa
2017	Methods in Computational Neuroscience, Woods Hole, USA
2017	Kavli Summer Institute in Cognitive Neuroscience, Santa Barbara, CA, USA
2017	IBRO Simons South African Computational Neuroscience Imbizo, Cape Town, South Africa
2017	FENS/IBRO Cajal Course in Computational Neuroscience, Lisbon, Portugal
2016	FENS/IBRO Cajal Course in Computational Neuroscience, Lisbon, Portugal
2015	FENS/IBRO Advanced Course in Computational Neuroscience, Lisbon, Portugal
2014	MPS-UCL Advanced Summer School on “Computational Psychiatry and Ageing Research”, Schloss Ringberg, Germany
2014	FENS/IBRO Advanced Course in Computational Neuroscience, Frankfurt, Germany
2013	FENS/IBRO Advanced Course in Computational Neuroscience, Będlewo, Poland
2012	MPS-UCL Advanced Summer School on “Computational Psychiatry and Ageing Research”, Schloss Ringberg, Germany
2012	FENS/IBRO Advanced Course in Computational Neuroscience, Będlewo, Poland
2012	“White Nights of Computational Neuroscience”, St Petersburg, Russia
2011	FENS/IBRO Advanced Course in Computational Neuroscience, Będlewo, Poland
2011	Brains & Minds, Budapest, Hungary
2010	Beliefs & Decisions, Budapest, Hungary
2010	FENS/IBRO summer school on “Cognition and Action”, Dubrovnik, Croatia
2010	Ararat Course on Memory, Yerevan
2009	Memory & Mind, Budapest, Hungary
2008	Hippocampus and Navigation, Oeiras, Portugal
2007	Budapest Semester in Cognitive Sciences, Budapest, Hungary

Elsewhere

- 2017– Topics in Cognitive Science (2 lectures / year), Central European University
- 2011–2012 Approaches to Cognitive Modelling, Statistics for Cognitive Scientists, Probabilistic Models of the Brain and the Mind (30 lectures in total), Central European University
- 2004–2006 Topics in Computational Neuroscience (1-2 lectures / year), University College London
- 2002 Computational Neuroscience (3 lectures + TA), Kalamazoo College, Kalamazoo, MI, USA
- 2000–2003 Physiology (6 practicals / year), Eötvös Loránd University, Hungary
- 1998–2003 Computational Neuroscience (4 lectures / year +TA), Eötvös Loránd University, Hungary
- 1996 Computer Skills (4 lectures), John Wesley Theological College, Budapest Hungary
- 1994 Computing (32 lectures), Berzsényi Dániel High School, Budapest, Hungary

ORGANISATION

University of Cambridge

- 2016–2018 leading the **Cambridge Neuroscience Incubator** initiative
a scheme to co-locate researchers from Engineering and other Departments / Institutes in Cambridge (PDN, Psychology, MRC CBU) to foster collaborations – highlighted as a “new and creative initiative” recommended for support in the 2016 Strategic Review of Cambridge Neuroscience
- 2016 **Cambridge Memory Meeting**
one-day meeting including talks and poster presentations, bringing together memory researchers (~60 participants) in Cambridge from various departments (Engineering, Psychology, PDN, Psychiatry, MRC CBU)
- 2008– bi-weekly **Journal Club on Computational Neuroscience** (over 100 occasions)
serves as a major hub and meeting place for computational neuroscientists in and around Cambridge, attracting people from various other Departments of the University (Cavendish Lab, DAMTP, Zoology, Physiology) and surrounding institutes (eg. the MRC CBU, Addenbrooke’s Hospital, and the Babraham Institute)
- 2008– **Seminar Series on Computational Neuroscience**
speakers included: Ehud Ahissar (Weizmann Institute), Mark Churchland (Stanford U), József Fiser (Brandeis U), Robert Gütig (MPI for Experimental Medicine), Kenneth Harris (Imperial C), Quentin Huys (UCL), Peter Latham (UCL), André Longtin (U Ottawa), Zhaoping Li (UCL), Kenneth Miller (Columbia U), Ilya Nemenman (Emory U), Stefano Panzeri (Italian Inst Tech), Panayiota Poirazi (Foundation for Res and Tech - Hellas), Rasmus Petersen, U Manchester, Jonathan Pillow (U Austin), Magnus Richardson (U Warwick), Maneesh Sahani (UCL), Adam Sanborn (U Warwick), Paul Schrater (U Minnesota), Peggy Seriès (U Edinburgh), Eero Simoncelli (NYU), Hugo Spiers (UCL), Taro Toyozumi (RIKEN Brain Sci Inst), Misha Tsodyks (Weizmann Institute, Columbia U), Joshua Vogelstein (John Hopkins U), Angela Yu (UCSD), Steven Zucker (Yale U)

International courses and workshops

- 2019 David Marr – 50 Years On, Cambridge (UK)
co-organisers: Elisa Galliano, Dervila Glynn, Steve Edgley, Ole Paulsen, Stephen Eglén, Tom Otis, Marco Tripodi
- 2016 FENS/IBRO Cajal Course on Computational Neuroscience, Lisbon (Portugal)
co-directors: Gilles Laurent, Christian Machens
- 2015 FENS/IBRO Advanced Course on Computational Neuroscience, Lisbon (Portugal)
co-directors: Gilles Laurent, Christian Machens
- 2014 FENS/IBRO Advanced Course on Computational Neuroscience, Frankfurt (Germany)
co-directors: Ehud Ahissar, Dieter Jaeger, Christian Machens
- 2014 Cosyne workshop on Noise correlations in the cortex (Snowbird, UT, USA)
co-organisers: József Fiser, Alex Pouget
- 2013 FENS/IBRO Advanced Course on Computational Neuroscience, Będlewo (Poland)
co-directors: Ehud Ahissar, Dieter Jaeger, Carl van Vreeswijk

- 2013 Cosyne workshop on Dendritic computation in neural circuits (Snowbird, UT, USA)
co-organisers: DJ Strouse, Balázs Ujfalussy, Tiago Branco
- 2012 FENS/IBRO Advanced Course on Computational Neuroscience, Będlewo (Poland)
co-directors: Dieter Jaeger, Yifat Prut, Carl van Vreeswijk
- 2010 Summer course on Beliefs and decisions: of minds and machines (Central European University, Budapest, Hungary)
- 2010 Cosyne workshop on The Sampling Hypothesis (Snowbird, UT, USA)
co-organisers: Pietro Berkes, József Fiser
- 2009 NIPS workshop on Normative Electrophysiology (Whistler, BC, Canada)
co-organiser: Jean-Pascal Pfister
- 2008 PGCN course and workshop on the Hippocampus and Navigation (Gulbenkian Institute, Oeiras, Portugal)
co-organiser: Miguel Remondes

SERVICE

University of Cambridge

- 2019 Lead for faculty search, Lectureship in AI and Neuroscience, Engineering
- 2018– Steering Committee, Cambridge Neuroscience
- 2017– Steering Committee, Institute for Neuroscience
- 2011–2013 Steering Committee, Psychometrics Centre
- 2013, 2015 Interview Panel, Lectureship in Computational Neuroscience, Engineering

Elsewhere

- 2019 Delegate, Central European University – Technical University of Munich collaboration

Peer review activities

Grants:

- | | |
|--|-----------------------------------|
| Junior Research Fellowships (Cambridge, UK) | Bernstein Award (Germany) |
| Biotech and Biological Sci Research Council (UK) | Swiss National Science Foundation |
| Medical Research Council (UK) | NWO (Netherlands) |
| Economic and Social Research Council (UK) | Human Brain Project (EU) |
| Wellcome Trust (UK) | European Research Council |
| Hungarian Scientific Research Fund | National Science Foundation (USA) |
| National Neuroscience Programme (Hungary) | |

Journals:

- | | |
|---|---------------------------------------|
| Behavioral and Brain Sciences | Hippocampus |
| Brain Research | IEEE Transactions on Neural Networks |
| Cognition | Journal of Computational Neuroscience |
| Current Biology | Journal of Neurophysiology |
| Current Opinion in Neurobiology | Journal of Neuroscience |
| eLife | Nature |
| European Journal of Neuroscience | Nature Communications |
| Frontiers in Computational Neuroscience | Nature Neuroscience |
| Frontiers in Synaptic Neuroscience | Neural Computation |

Network: Computation in Neural Systems
Neuron
Philos Transact of the Royal Society B Biol Sci
Physics Letters A
PLoS Biology
PLoS Computational Biology

Books:

‘Phase Response Curves in Neuroscience’

Proc of the National Academy of Sciences, USA
Psychological Review
Science
Scientific Reports
Trends in Cognitive Sciences
Vision Research

Peer-reviewed conferences:

Computational and Systems Neuroscience
Neural Information Processing Systems

Editorial work

2019 Guest Editor, special issue on Computational Neuroscience, Current Opinion in Neurobiology
2014– Editorial Board, Computational Psychiatry