

Tom George

PhD candidate in ML and theoretical neuroscience,
also building open-source software
Cambridge | Harvard | UCL | Google

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EDUCATION	PhD, Sainsbury Wellcome Centre, UCL Advisors: Prof. Claudia Clopath (Imperial), Dr. Kimberley Stachenfeld (DeepMind/Columbia) and Prof. Caswell Barry (UCL). Member of Google DeepMind NeuroLab	2020–25
	Herchel Smith Scholarship, Harvard University Prestigious and fully funded scholarship to study at Harvard. Advisors: Prof. Cengiz Pehlevan & Prof. Sam Gershman	2019–20
	BA, MA & MSci, Physics (Natural Sciences), University of Cambridge 1 st Class (Part III), 1 st Class (Part II), 1 st Class (Part I)	2015–19
AWARDS	UCL Early Career Neuroscience Prize Junior category	2023
	Herchel Smith Scholarship to Harvard, awarded by Emmanuel College Cambridge	2019
	Emmanuel Davies Senior Scholarship and John Mainhood Prize Academic achievement	2016–18
SOFTWARE	RatInABox Creator and maintainer of a popular python package for generation of motion and neural data in spatial environments (>35,000 PyPI downloads)	2022
	KalMax Jax-optimised Kalman filtering and likelihood-based decoding	
TECHNICAL SKILLS	Programming Python (Highly proficient), Julia, bash [github.com/TomGeorge1234]. Machine Learning NLPs, ANNs, CNNs, RNNs, generative models (PyTorch, tensorflow). Languages English (Native), Spanish (DELE B1 equivalent).	
INDUSTRY	X AI Residency, Google Mountain View, California	2025
	ML consultant, Mltpl ML tools for automated business valuations	2023–24
TEACHING & OUTREACH	TReND-CaMinA Co-founder and organiser of a comp neuro and ML summer school hosted in Africa. Secured >\$100,000 funding. (Ghana 2023, Rwanda 2024, Zambia 2025)	2023-25
ACADEMIC PLACEMENTS	Caltech Summer Undergraduate Research Fellow, Prof. A. Thompson	2018
	Okinawa Computational Neuroscience Course (OCNC) Summer school participant	2022
	Okinawa Institute of Science and Technology (OIST) Research intern with Prof. Tomoki Fukai	2022
SELECTED INVITED TALKS	Oxford University, Cortex Club RatInABox (see open source).	2024
	Google DeepMind, London Optimizing internal representations (NeuroLab workshop)	
	Imperial, Pint of Science Public outreach talk on “The language of the brain”	
	ICLR TinyPapers workshop oral Neural oscillations and eligibility traces, Kigali, Rwanda	2023
	Google DeepMind, London The Helmholtz hippocampus (NeuroLab workshop)	
	UCL Neuroscience Symposium (prize winner) How hippocampus learns predictive maps?	
	Spring Hippocampal Research Conference, Verona RatInABox (see open source).	
	MILA Neural-AI reading group Biological Reinforcement Learning in the Hippocampus.	2022
SELECTED PUBLICATIONS	T. M. George (2024). SIMPL: Scalable and hassle-free optimisation of neural representations from behaviour. <i>(Under review at ICLR)</i>	
	T. M. George (2023). A generative model of the hippocampal formation trained with theta driven local learning rules. <i>Advances in Neural Information Processing Systems (NeurIPS)</i>	
	E. Thompson, ..., T. M. George et al. (2024) Replay of procedural experience is independent of the hippocampus. <i>(Under review at Nature)</i>	
	T. M. George (2023). Theta sequences as eligibility traces: A biological solution to credit assignment. <i>Tiny Papers Track at ICLR 2023, Kigali, Rwanda. Paper (accepted for oral pres.)</i>	
	T. M. George , M. Rastogi, W. de Cothi, C. Clopath, K. Stachenfeld, & C. Barry (2024). RatInABox: An open source toolkit for modelling locomotion and neuronal activity in continuous environments. eLife	
	T. M. George* , W. de Cothi*, K. Stachenfeld, & C. Barry (2022). Rapid learning of predictive maps with STDP and theta phase precession. eLife .	

T. M. George, G. E. Manucharyan, & A. F. Thompson (2021). Deep learning to infer eddy heat fluxes from sea surface height patterns of mesoscale turbulence. *Nature Communications*.

T. M. George & P. Liò (2019). Unsupervised Machine Learning for Data Encoding applied to Ovarian Cancer Transcriptomes. *bioRxiv*.

REVIEWING **Area chair, ICLR 2023 and 2024** | TinyPapers workshop
Reviewer, NeurIPS 2023 | Associative Memory & Hopfield Networks workshop

CONFERENCE POSTERS ETC. COSYNE 2024 poster: C. Barry, M. Rastogi, W. de Cothi, C. Clopath, K. Stachenfeld, **T. M. George** (2024) RatInABox: A unified Python framework for modelling spatial behaviour and neural data

COSYNE 2024 poster: **T. M. George**, C. Barry, K. Stachenfeld, C. Clopath, T. Fukai (2024) The Helmholtz Hippocampus: A biologically plausible generative model of the Hippocampal formation

NeurIPS 2023 poster: **T. M. George**, C. Barry, K. Stachenfeld, C. Clopath, T. Fukai (2024) The Helmholtz Hippocampus: A biologically plausible generative model of the Hippocampal formation

COSYNE 2024 poster: **T. M. George**, W. de Cothi, K. Stachenfeld, C. Barry (2022). Rapid learning of predictive maps with STDP and theta phase precession.

SFN 2022 poster & Cosyne 2023 Talk: E. Thompson, L. Rollik, **T. M. George*** et al., Replay of motor sequences in DLS during consolidation using an unsupervised point process model.

SFN 2021 poster: A. Onih, **T. M. George**, S. Nierwetberg & A. Akrami. Pupil dilation as a proxy for statistical learning in freely moving mice and humans.

Reservoir networks for unsupervised statistical learning (2021) (Github <https://tinyurl.com/3mmpj6r>). Advisors: Dr. Athena Akrami & Prof. Claudia Clopath

Pupillometry protocol and pipeline for studying temporal structure learning in humans (2021) (Github, <https://tinyurl.com/2nr4c72t>). Advisors: Dr. Athena Akrami & Prof. Claudia Clopath

Deep learning to explain mixed selectivity of neurons in the prefrontal cortex (2020) (<https://tinyurl.com/2p8zdd8w>). Advisor: Prof. Cengiz Pehlevan & Prof. Sam Gershman