Caroline Haimerl

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Google scholar profile // GitHub profile // Linkedin profile

keywords	multi-area computations for multiscale behavior, ML for neuroscience, reinforcement learning

current research

Champalimaud Centre for the Unknown, Lisbon, Portugal

2022-now **Research Fellow**
advisors: Joe J. Paton and Christian Machens

education

New York University, NY, US

2016-2022 **PhD Neuroscience**
advisors: Eero P. Simoncelli and Cristina Savin
affiliation: Center for Neural Science

University of Vienna, AUT

2012-2016 **Bachelor of Science - Psychology**

2011-2015 **Bachelor of Science - Statistics**

University of Chicago, IL, US

2015 exchange program with focus computational neuroscience

awards

2025 Reinforcement Learning and Decision Making travel grant by the OpenMind Institute
2024 **Simons Collaboration on the Global Brain Transition to Independence Award**
2024 Portuguese Society for Neuroscience travel award for conference attendance
2022 NYU Dissertation award
2019-2021 **Google PhD fellowship**
2016-2018 MacCracken Fellowship for Doctoral Studies, NYU
2018 COSYNE travel grant for presenters
2017 CAJAL Stipend to attend summer school
2017 Dean's student travel grant to present research
2015-2016 Erasmus stipend for research abroad
2015 Scholarship for Exchange Semester, awarded by the University of Vienna
2014 Merit Scholarship, Department of Psychology, University of Vienna
2013 Merit Scholarship, Department of Statistics, University of Vienna

previous research

Google Brain, virtual, US
2021(3m) research intern
supervisor: Michael Isard
topic: mixture of heterogeneous experts models to scale up NLP Transformers

New York University, NY, US

2016 graduate research assistant
advisor: György Buzsáki
topic: decoding from neural populations in hippocampal CA1 during 2D maze exploration

INMED, Marseille, FR

2015-2016 research technician
advisors: Rosa Cossart and Arnaud Malvache
topic: modeling hippocampal networks underlying flexible spatio-temporal processing

University of Chicago, IL, US

2015	research technician
advisor:	Jason MacLean
topic	detecting microcircuits in temporal patterns of spontaneous cortical activity

publications

Haimerl, C.*, Rodrigues, F.*, Paton, J. (2025). Time, control, and the nervous system. **Annual Review of Neuroscience** https://doi.org/10.1146/annurev-neuro-112723-025348

Haimerl, C., McNamee, D. (2024). *Regulating augmentations during open-ended learning via phasic serotonergic signaling*. **NeurIPS** workshop "Intrinsically Motivated Open-Ended Learning"

Haimerl, C., Ruff, D. A., Cohen, M. R., Savin, C., & Simoncelli, E. P. (2023). *Targeted V1 comodulation supports task-adaptive sensory decisions*. **Nature Communications**, 14(1), 7879.

Haimerl, C., Simoncelli, E.P., Savin, C. (2022). *Targeted comodulation in V1 supports flexible and accurate downstream decoding*. **NeurIPS** workshop "All Things Attention" (selected for talk)

Hart, B., Achakulvisut, T., Adeyemi, A., Akrami, A., Alicea, B., Alonso-Andres, A., ... **Haimerl**, C., ... (2022). *Neuromatch Academy: A 3-week, online summer school in computational neuroscience*. Journal of Open Source Education*, 5*(49).

Haimerl, C., Savin, C., Simoncelli, E.P. (2019). *Flexible and accurate decoding of neural populations through stochastic comodulation,* **NeurIPS**

Haimerl, C.*, Angulo-Garcia, D.*, Villette, V., Reichinnek, S., Torcini, A., Cossart, R., Malvache, A. (2019). *Internal representation of hippocampal neuronal population spans a time-distance continuum*, **PNAS**, 116 (15)

Malvache, A., Reichinnek, S., Villette, V., **Haimerl, C.**, Cossart, R. (2016). *Awake hippocampal reactivations project onto orthogonal neuronal assemblies*, **Science**, 353/6305

preprints

Boeshertz, G., **Haimerl, C.**, & Savin, C. (2023). *Task adaption by biologically inspired stochastic comodulation*. arXiv preprint arXiv:2311.15053.

talks

2025 Sept	Invited talk Bernstein workshop, Frankfurt
2025 May	Short talk Simons Collaboration on the Global Brain, New York City
2025 Apr	Short talk Janelia Mechanistic Cognitive Neuroscience conf., Washington DC
2025 Apr	Invited talk Técnico, Lisbon
2025 Feb	Invited talk Medical University, Vienna
2024 Jun	Invited talk ISTA, Klosterneuburg
2024 Apr	Champalimaud Internal Seminar, Lisbon
2024 Mar	Invited talk in Haefner lab (online)
2023 Sep	Bernstein workshop, Berlin
2023 Feb	Workshop "Towards a theory of artificial and biological neural networks", Les Houches
2023 Feb	Champalimaud Internal Seminar, Lisbon
2022 Dec	NeurIPS Workshop "All Things Attention", New Orleans
2021 Apr	Invited talk, Champalimaud Centre for the Unknown, Lisbon
2021 Apr	Invited talk, Max Planck Institute, Tübingen,
2021 Mar	Lumos External Talks series (online)
2021 Jan	Open House, CNS, NYU, New York (internal)
2020 Nov	Neuroscience Talk Series, CNS, NYU, New York (internal)
2020 Jan	Open House, CNS, NYU, New York (internal)
2019 Nov	Doctoral student talk series, CNS, NYU, New York (internal)
2019 Oct	Janelia Theory Workshop, Janelia Research Campus
2019 Jul	Google PhD Fellowship Summit, Mountain View
2019 Jun	Invited talk, Center for the Neural Basis of Cognition, University of Pittsburgh

	2018 Oct	Champalimaud Research Symposium, Lisbon
	2018 Mar	COSYNE main conference, Denver
	2017 Mar	INMED, Marseille
posters	2025 Jun	Reinforcement Learning and Decision Making conference, Dublin
	2025 Mar	COSYNE main conference, Montreal
	2024 Dec	NeurIPS workshop “Intrinsically Motivated Open-Ended Learning”, Vancouver
	2024 June	FENS, Vienna
	2024 Feb	COSYNE main conference, Lisbon
	2023 Sep	Bernstein conference, Berlin
	2022 Mar	COSYNE main conference, Lisbon, see poster presentation online
	2020 Sep	Bernstein conference, Berlin
	2019 Dec	NeurIPS, Vancouver
	2019 Mar	COSYNE main conference, Lisbon
	2018 Jul	MLSS, Buenos Aires
	2017 Feb	COSYNE main conference, SLC
	2017 May	ICMNS, Boulder
	2016 Nov	SFN, San Diego
	2016 Jul	FENS, Copenhagen
professional activities	2025	Reviewer for Scientific Reports
	2025	Science Outreach, MAAT x Festival Cumplicidades, Lisbon, Portugal
	2024-25	Reviewer for Journal of Neuroscience
	2024	Teaching Assistant at Cajal Computational Neuroscience course
	2024	Organizer workshop “Multi-regional computations” COSYNE
	2023	Reviewing for COSYNE 2024
	2023-now	Founder of “Women & Allies in Science” group at the Champalimaud Centre
	2023-now	Organizer of Theory Seminars at Champalimaud Centre
	2023	Organizer workshop “Behavioral flexibility & its neural correlates” Bernstein conference
	2023	Reviewer for 9th European Student Conference on Behavior & Cognition
	2022	Reviewer for COSYNE 2023
	2022	speaker for SoapBox Science at the Festival Internacional da Ciência (science outreach)
	2022 Jul	Lecturer in Preschool of Cajal Computational Neuroscience course
	2020 Jul	Lecturer “Linear Dynamical Systems and the Kalman filter” Neuromatch Academy
	2020 Feb	Teaching Assistant “Normative Approaches” COSYNE tutorial
	2019 Oct	Lecturer “Dynamical latent models” Janelia Theory Workshop, Janelia Research Campus
	2019	Teaching Assistant “Probabilistic Time Series Analysis”, New York University
	2015	Teaching Assistant “Statistical Programming with R”, University of Vienna
mentoring	2025	Thesis defense committee for PhD candidate Ayesha Vermani at Champalimaud Centre
	2025	Thesis defense committee for PhD candidate Miguel Paço at Champalimaud Centre
	2024	Thesis defense committee for PhD candidate Solène Sautory at Champalimaud Centre
	2024	Thesis defense committee for Master student Lucas Piper at Instituto Superior Técnico
	2023-now	Co-supervisor of PhD student Francisco Azevedo at Champalimaud Centre
	2023	Supervisor of summer intern Anna Freund at Champalimaud Centre
	2023	Co-supervisor of Master student Gauthier Boeshertz at New York University
relevant courses & trainings	2018 Jun	Machine Learning Summer School, Buenos Aires
	2017 Aug	Cajal Computational Neuroscience course, Champalimaud Centre
	2016 May	Paris Neuroscience School in Optical Imaging and Electrophysiology at the Université Paris Descartes and Ecole Normale Supérieure