Marine Schimel

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Selected work experience

Postdoctoral Researcher | Stanford University March 2024 -
- Design of algorithms to probe neural circuits using optogenetic perturbations, and theoretical tools to interpret related data
- Advised by Prof. Surya Ganguli and Prof. David Sussillo

Research Scientist Intern, Meta-Reality Labs August 2023-January 2024

Quantitative Research Intern, G-Research Summer 2022

Education

PhD Computational Neuroscience | University of Cambridge 2019-2024
- Research interests : Motor control, neural dynamics, optimal control, probabilistic modelling, meta-learning
- Supervised by Dr Guillaume Hennequin and funded by an EPSRC DTP studentship

MSci in Physics | University of Cambridge | 1st class 2018-2019

BSc in Natural Sciences | University of Cambridge | 1st class every year 2015-2018
- Focus on Physics and Neurobiology

CPGE PCSI | Lycée Louis-le-Grand | Paris 2014-2015

Publications

Dynamic consensus-building between neocortical areas via long-range connections 2024
bioRxiv

Learning interpretable control inputs and dynamics underlying animal locomotion 2024
ICLR 2024

When and why does motor preparation arise in RNN models of motor control? 2023
eLife

iLQR-VAE : control-based learning of input-driven dynamics with applications to neural data 2022
ICLR 2022 (Oral presentation, top 5% accepted papers)

Selected presentations

Data-driven modelling revelas consensus building dynamics across brain areas June 2024
ICTP Workshop on Theoretical Neuroscience (invited speaker)

Learning input-driven dynamical systems from data March 2024
Cosyne Dynamical Systems Workshop (invited speaker)

Tutorial on iLQR November 2022
Janelia NeuroTheory workshop

iLQR-VAE model presentation February 2022
Neural Latents Benchmark workshop (invited talk)

Probabilistic input-driven RNNs for identifying latent dynamics in neural data October 2021
Champalimaud Research Symposium (selected talk)

Selected awards

EPSRC Access to HPC grant (estimated value of 30000£) 2022-2023 and 2023-2024

Microsoft Research Award 2019
- Awarded for the best computational research project in the Cambridge Physics MSci.

Silver Medal at the International Physics Olympiad 2015

Skills

Languages: French (Native), English (Fluent), German (C1), Spanish (A2)
Programming: Python (Numpy, Jax, Pytorch), Ocaml, Matlab