

2023 - present **Senior Research Fellow in Computational Neuroscience** (University College London)
Researcher in the Behrens Group at the Sainsbury Wellcome Centre using mathematical and computational methods to study the neural underpinnings of planning and decision making.

Education

2019 - 2023 **PhD Computational Neuroscience** (University of Cambridge)
Supervisor: [Dr Guillaume Hennequin](#)
Thesis: [Strong and weak principles of Bayesian machine learning for systems neuroscience](#).

2018 - 2019 **MPhil Computational Biology** (University of Cambridge)
Result: Distinction (1st of 19 students)

2015 - 2018 **BA Natural Sciences** (University of Cambridge)
Result: First Class Honors (1st of 112 students)

Research

2023 **Meta Reality Labs** (Intern in CTRL-labs division)

2022 **UC San Diego Department of Cognitive Science** (Supervisor: [Dr Marcelo Mattar](#))
• Studying planning & decision making with behaviour, neural recordings, and deep RL.

2019 - 2022 **Harvard Center for Brain Science** (Supervisor: [Professor Bence Ölveczky](#))
• Analysis & modelling of the stability of neural dynamics associated with motor memories.

2018 - 2019 **Janelia Research Campus** (Supervisor: [Professor Vivek Jayaraman](#))
• Analysis & modelling of connectomic & RNAseq data from the fly head direction circuit.

2017 - 2018 **Cambridge Centre for Computational Chemistry** (Supervisor: [Dr Alex Thom](#))
• Development of a Hartree Fock-based method for modeling electron transfer reactions.

2016 - 2017 **Aarhus University Department of Biomedicine** (Supervisor: [Dr Yonglun Luo](#))
• Investigation of factors affecting the efficiency of CRISPR/Cas9 for genome editing.

Teaching

2018-2023 University of Cambridge – Teaching Assistant
3rd year theoretical chemistry, mathematical biology, and computational neuroscience.

2021 Neuromatch Academy – Teaching Assistant, computational neuroscience.

Fellowships

2019 - 2023 [Cambridge Gates Scholarship](#)

2016 - 2019 Scholar of Magdalene College, Cambridge

2018 [Janelia Undergraduate Scholar](#)

2015 *British Chamber of Commerce in Denmark* Scholar

Prizes

2015 - 2018 GWHP Memorial Prize for best performance in undergraduate chemistry.
Gill, Bundy & B.C. Saunders prizes for excellence in university examinations.
BP Prizes for the best performance in practical chemistry and theoretical chemistry.

2014 & 2015 Silver medal – The International Chemistry Olympiad.

2014 & 2015 First place – The Scandinavian Chemistry Olympiad.

Programming

Python (PyTorch, Jax, TensorFlow), Julia (Zygote, Flux), R, Matlab.

Reviewing

Nat. Neuroscience, Neuron, Nat. Methods, NeurIPS, Nat. Comms., Neural Computation

Invited Talks

A recurrent network model of planning with replays

- 2023 Harvard University/Janelia Research Campus (Albert Lee lab).
- 2023 DeepMind NeuroLab workshop.
- 2023 Bristol Computational Neuroscience Unit.
- 2023 NYU Department of Psychology.
- 2023 University of California, Berkeley (David Foster lab).
- 2022 Sainsbury Wellcome Centre (Timothy Behrens lab).
- 2022 Gatsby Computational Neuroscience Unit (Maneesh Sahani lab).
- 2022 Oxford University (Chris Summerfield lab).

Bayesian machine learning for topological analyses of neural data

- 2022 NeurIPS workshop on symmetry and geometry in neural representations.
- 2022 Cosyne workshop on motor-driven cognition.

Representational stability and continual learning in neuroscience and AI

- 2022 [ContinualAI](#).
- 2021 The Weizmann Institute of Science (Yaniv Ziv lab).

Gaussian processes for neural data analysis

- 2023 Bernstein workshop on symmetry, invariance, and neural representations.
- 2021 Imperial College London (Juan Gallego lab).
- 2021 [MIT Brain and Cognitive Sciences tutorial](#).
- 2021 Harvard University (Bence Ölveczky lab).

Selected Publications

- 2023 **Kristopher T. Jensen**, Guillaume Hennequin*, and Marcelo Mattar*. [A recurrent network model of planning explains hippocampal replay and human behavior.](#) *Nature Neuroscience* (in press; available on [bioRxiv](#)).
- 2023 **Kristopher T. Jensen**. [An introduction to reinforcement learning for neuroscience.](#) *arXiv*.
- 2023 Jake P. Stroud, Michał J. Wójcik, **Kristopher T. Jensen**, Makoto Kusunoki, Mikiko Kadohisa, John Duncan, Mark G. Stokes, Máté Lengyel. [Ignorance is bliss: effects of noise and metabolic cost on cortical task representations.](#) *bioRxiv*.
- 2022 **Kristopher T. Jensen**, Naama Kadmon Harpaz, Steffen B. E. Wolff, Ashesh K. Dhawale, and Bence P. Ölveczky. [Long-term stability of single neuron activity in the motor system.](#) *Nature Neuroscience*.
- 2022 Marine Schimel, Ta-Chu Kao, **Kristopher T. Jensen**, and Guillaume Hennequin. [iLQR-VAE : control-based learning of input-driven dynamics with applications to neural data.](#) *The International Conference on Learning Representations* (oral).
- 2021 **Kristopher T. Jensen***, Ta-Chu Kao*, Jasmine T. Stone, and Guillaume Hennequin. [Scalable Bayesian GPFA with automatic relevance determination and discrete noise models.](#) *Advances in Neural Information Processing Systems*.
- 2021 Ta-Chu Kao*, **Kristopher T. Jensen***, Alberto Bernacchia, and Guillaume Hennequin. [Natural continual learning: success is a journey, not \(just\) a destination.](#) *Advances in Neural Information Processing Systems*.
- 2020 **Kristopher T. Jensen**, Ta-Chu Kao, Marco Tripodi, and Guillaume Hennequin. [Manifold GPLVMs for discovering non-Euclidean latent structure in neural data.](#) *Advances in Neural Information Processing Systems*.

- 2020 Daniel B. Turner-Evans, **Kristopher T. Jensen***, Saba Ali*, Tyler Paterson*, Arlo Sheridan*, Robert P. Ray, Tanya Wolff, Gerald M. Rubin, Davi D. Bock, and Vivek Jayaraman.
The neuroanatomical ultrastructure and function of a biological ring attractor. *Neuron*.
- 2018 **Kristopher T. Jensen**, Raz L. Benson, Salvatore Cardamone, and Alex J. W. Thom.
Modeling electron transfers using quasidiabatic Hartree-Fock states.
Journal of Chemical Theory and Computation.
- 2017 **Kristopher T. Jensen**, Lasse Fløe, Trine S. Petersen, Jinrong Huang, Fengping Xu, Lars Bolund, Yonglun Luo, and Lin Lin.
Chromatin accessibility and guide sequence secondary structure affect CRISPR-Cas9 gene editing efficiency. *FEBS Letters*.

Conferences

- 2023 **Bernstein Conference** (*poster*).
An RNN model of planning explains hippocampal replay and human behavior.
- 2023 **Computational and Systems Neuroscience (Cosyne)** (*organizer*).
Workshop on the use of generative models for neural and behavioral data analysis.
- 2023 **Computational and Systems Neuroscience (Cosyne)** (*poster*).
An RNN model of planning explains hippocampal replay and human behavior.
- 2022 **Reinforcement learning and decision making** (*poster*).
Learning goal-directed behavior in humans and RNNs.
- 2021 **Champalimaud Research Symposium** (*poster*).
Gaussian process latent variable models for neural data analysis.
- 2021 **Computational and Systems Neuroscience (Cosyne)** (*poster*).
Beyond the Euclidean brain: inferring non-Euclidean latent trajectories from spike trains.
- 2020 **From Neuroscience to Artificially Intelligent System** (*poster*).
Self-supervised learning for multisensory integration in biologically inspired networks.
- 2020 **Bernstein Conference** (*contributed talk*).
[mGPLVM – Beyond the Euclidean brain](#).
- 2018 **Janelia Undergraduate Scholars Symposium** (*poster*).
Angular velocity integration in *Drosophila melanogaster*.