Jai Bhagat

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Selected Skills

ML & AI

Mechanistic Interpretability

Deep & Reinforcement Learning (incl. Multimodal Transformers, LSTMs, CNNs, TD, DQNs, PPO)

Supervised Learning (incl. GLMs, SVMs, Forests)

Unsupervised Learning (incl. HDBSCAN, OPTICS)

Distributed Training (incl. DDP, FSDP)

Programming Languages

Python (incl. PyTorch, Jax), Bonsai, C, Rust, CUDA

Software Services

Wandb, Docker, Slurm, AWS (EC2, ECS, S3), GCP, HF 🤗

Mechatronics

Micro-controllers -computers (incl. Arduino, R Pi)

Simple PID, KF Control Systems

Electrophysiology Acquisition

CAD & 3d Printing

Laser Cutting

Wet Lab

In-vivo Electrophysiology

Genotyping

Optogenetics

Stereotaxic surgeries

Histology

Selected Awards

Bogue Fellowship 2024

Fondation JFMLCT 2023

UCL AWPO 2022

SWC Public Engagement Fund 2022

SWC Ph. D. Scholarship 2021

Extra Training

MARS Scholar - AI Alignment

ARENA scholar - AI Alignment

Machine Learning Summer School

Cajal Ephys Acquisition Course

Education

Ph. D. Computational Neuroscience | University College London 2025

A.S.P. Neuroscience | Massachusetts Institute of Technology 2018

B.A. Neuroscience | Boston University 2015

Selected Professional Experience

Machine Learning Research Scientist, Enigma 2025/09 – Present
Palo Alto, CA, USA

Bogue Fellow Research Scientist, UCL - Anthropic 2025/01 – 2025/03
San Francisco, CA, USA

Data Scientist, Sainsbury Wellcome Centre 2020/11 – 2021/08
University College London, London, UK

Software Developer, CortexLab & International Brain Lab 2018/10 – 2020/08
University College London, London, UK

Technical Associate I/II, Wilson Lab 2016/06 – 2018/06
Massachusetts Institute of Technology, Cambridge, MA, USA

Selected Publications

J. Bhagat,*, S. Molas-Medina*, G. Giglemiani, S. Heimersheim. Compressed computation is not computation in superposition. *NeurIPS 2025 Mechanistic Interpretability Workshop*.

J. Bhagat, A. G. Pouget, S. Molas-Medina. A pipeline for interpretable neural latent discovery. *NeurIPS 2025 Data on the Brain & Mind Workshop*.

D. Campagner* ***J. Bhagat****, ***G. Lopes**** et al. Aeon: An open-source platform to study the neural basis of ethological behaviors over naturalistic timescales. *Biorxiv & In Press*.

International Brain Laboratory, K. Banga, J. Benson, ***J. Bhagat***, et al. Reproducibility of in-vivo electrophysiological measurements in mice. *eLife* 2025.

N. Steinmetz*, C. Aydin*, A. Lebedeva*, M. Okun*, M. Pachitariu*, ***J. Bhagat***, et al. Neuropixels 2.0: A high-density probe for stable, long-term brain recordings. *Science* 2021.

J. Bhagat*, M. J. Wells*, et al. Rigbox: An open-source toolbox for probing neurons and behavior. *eNeuro* 2020.

J. Bhagat, et al. LSTM neural networks for LFP event detection and classification in the rodent hippocampal-cortical network. *MIT BCS Symposium 2018*.

Selected Open-Source Projects

Neuronauts: An educational outreach program for teaching teenagers fundamentals in engineering, computer science, neuroscience, and artificial intelligence. *(Founder)*

nanoGPT: A minimal (nanomal?) Python repository containing code for building, training, and running nanoGPT. *(Sole creator, developer, maintainer)*

Wall-E-GPT: Python and Arduino code for a GPT-controlled, semi-autonomous rover robot running on a Raspberry Pi. *(Sole creator, developer, maintainer)*

aeon_mecha: Project Aeon's main Python library for interfacing with acquired experiment data. *(Creator, developer, maintainer)*

aeon_experiments: Project Aeon's main Bonsai and C# library for running behavioral neuroscience experiment workflows. *(Developer, maintainer)*

ibllib: The International Brain Laboratory's core shared Python libraries for data pipeline management and analysis. *(Developer, maintainer)*

Rigbox: A MATLAB and C based toolbox for running behavioral neuroscience experiments and managing data. *(Developer, maintainer)*

J_Clust. A complete, MATLAB spike sorting package.
(Sole creator, developer, maintainer)