Christopher A. Henry, Ph.D.

Portfolio Website | LinkedIn | GoogleScholar

Computational Neuroscientist and AI / Data Scientist with 20+ years of experience in computational modeling and relating large-scale neurophysiological data to internal states, representation, classification, predictive outcomes, and adaptive behavioral decisions.

Extensive experience in leading scientific teams and projects, experimental design, data curation, developing novel data analyses and pipelines, data visualization, fitting ML and AI models, and scientific communication.

Skills

Programming	Python | Matlab | PsychToolbox | OpenGL | LaTeX
AI / ML / Data Analysis	Tensorflow | PyTorch | Numpy | Scikit_Learn | Pandas | SQL
Graphics	Matplotlib | Seaborn | Adobe Illustrator | Photoshop | Tableau
Experiments	Physiology | EEG | Eye-tracking | Perception | Cognition Decision-making | Quantitative Modeling of Physiology & Behavior
Math	Statistics | Linear and Nonlinear Systems | Machine Learning Time Series Analysis | Signal Processing | Dimensionality Reduction Convolutional & Recurrent Neural Networks

Certification

Deep Learning | TensorFlow Developer | Generative Adversarial Networks (*DeepLearning.ai*)
Python for Data Science (*LinkedIn learning*) | Data Science Bootcamp (*Flatiron School)*

Work Experience

Machine Learning & Data Scientist *Univ. of Pittsburgh (remote)* 2023 – present

- Applied factor analysis to identify attentional sources of covariability in neuronal populations
- Derived broad theoretical framework for tracking internal state changes from behavior data
- Predicted continuous eye trajectories using RNN models fit to motor neuron activity

Faculty Associate *Albert Einstein College of Medicine, NY* 2018 – 2023

- Developed project and led team to determine how vision operates in cluttered environments
- Acquired $3 million in funding from two grants (NIH and Revson Foundation)
- Built machine learning pipelines and computational models to link neural data to perception and pattern recognition

Postdoctoral Fellow *Albert Einstein College of Medicine, NY* 2013 – 2018

- Awarded 2 year fellowship to study how visual cortex adapts to sensory information (NIH)
- Collected and analyzed extensive neural (1000s of neurons) and perceptual (millions of trials) data sets across humans and nonhuman primates
- Mentored 10 postdocs, graduate students, and technicians in experimental and analytical approaches to vision

Ph.D. in Neuroscience *New York University, NY* 2005 – 2013

- Led development, experimentation, and reporting of projects focused on how visual neurons dynamically encode changes in sensory context
- Designed parallel perceptual experiments in humans to probe visual texture perception
- These efforts directly supported $2 million in acquired research funding (NIH)

Research Interests

neural population factor analysis | closed-loop neural interfaces | human-computer interaction
adaptive coding | decision-making | model interpretability model generalization across contexts

Education

Ph.D. in Computational Neuroscience — New York University
B.A. in English Literature and Writing — Dartmouth College

Honors and Awards

NYU Dean's Dissertation Fellowship
Conference Travel Awards (Society for Neuroscience, Computational & Systems Neuroscience, Vision Sciences Society)

Selected Publications (from 7 co-authored publications | 36 conference presentations)

Henry C.A. and Kohn A. (2022) Feature representation under crowding in V1 and V4 neuronal populations. Curr Biol (22) 01697-9.

Henry C.A. and Kohn A. (2020) Spatial contextual effects in primary visual cortex limit feature representation under crowding. Nat Commun 11(1): 1687.

Henry C.A., Jazayeri M., Shapley R.M., and Hawken M.J. (2020) Distinct spatiotemporal mechanisms underlie extra-classical receptive field modulation in macaque V1 microcircuits. eLife 9: e54264.

Teaching

Sensory & Motor Systems; Honors Neuroscience (New York Univ.) | Computational Neuroscience Faculty Mentor (Neuromatch Academy) | Scientists Teaching Science (NY Academy of Science)