Matthias Christenson, PhD

145 6th Ave., Apt 2B, New York City, NY 10013, USA

☐ 917-863-4656 | ✉ m.christenson@pm.me | ⌨ gucky92 | 🔗 gucky92

Education

Columbia University (CU)   *New York, USA*

PHD NEUROBIOLOGY AND BEHAVIOR   *02/2023*

- *3.95 GPA* | Thesis advisors: Rudy Behnia and Larry Abbott
- Identified neural mechanisms of color vision using biological experimentation and machine learning
- CoSyNe 2020 Presenters Travel Award (top *1%*) and CCNSS 2018 Travel Award (top *5%*)
- Presented and published my work at *10+* international conferences and top (Q1) science journals
- Organized and taught the "Python for Neural Data" graduate-level course (*40+* students)
- Relevant Coursework: Graphical Models, Deep Learning, Statistical Analysis of Neural Data

University College London (UCL)   *London, UK*

MSci/BSc NEUROSCIENCE   *07/2016*

- *1st class honours (4.00 GPA)* | Theses advisors: Michael Häusser (MSci) and Angus Silver (BSc)
- Burnstock Prize (*Best in class*), ChangeMakers Award *for podcast series*, Dean's List
- Physiological Society Undergraduate 2015 Studentship (top *10%* of selected applicants)

Work Experience

Zuckerman Institute & Center for Theoretical Neuroscience, Columbia University   *New York, USA*

POSTDOCTORAL RESEARCH SCIENTIST   *12/2022 – present*

DOCTORAL RESEARCH SCIENTIST   *08/2017 – 11/2022*

- Independently drove research direction incl. *3+* funded research proposals (total of *$200k* funded)
- Developed computationally efficient models to extract patterns from highly complex neural signals
- Adapted state-of-the-art ML models (autoencoders) to reduce SNR of noisy time series data *30-fold*
- Simulated biological circuits using RNNs to develop and test neuroscientific theories
- Managed projects of four master students, two software developers, and one junior PhD student
- Invited to review *5+* research papers in Q1 journals as a computational neuroscientist expert

House of Crops Unamera   *Remote*

DATA SCIENTIST (PART-TIME)   *05/2020 – 06/2021*

- Built custom ML models that improved price prediction by *500%* across local German crop markets
- Scraped, standardized, and analyzed data of crop price points from different online sources
- Implemented dashboards and automated emails for the team to view price data and predictions

Neural Computation Häusser Group, UCL   *London, UK*

UNDERGRADUATE RESEARCHER (PART-TIME)   *09/2013 – 07/2016*

- Identified synaptic mechanisms underlying spike events in neurons of behaving rodents
- Automated analysis of animal behavior in a closed-loop RL task using computer vision
- Increased the efficiency of our bootstrapping algorithms *100-fold* to rapidly detect spike events

Selected Publications & Presentations

- **Christenson**[c], *et al*, "Exploiting color space geometry for visual stimulus design…", Phil. Trans. R. Soc. (2022)
- Ganguly[1], **Christenson**[1], Behnia, "Normative models of spatio-spectral decorrelation…", CoSyNe (2022)
- Heath[1], **Christenson**[1], *et al*, "Circuit mechanisms underlying chromatic encoding…", Current Biology (2020)

[1] first authors, [c] corresponding author

Skills & Interests

Overall	Machine Learning, Quantitative Research, Project Management, Software Development, Technical Writing & Science Communication
Programming	7+ YEX with Python (including pytorch, sklearn, scipy, pandas, pyro, cvxpy, Flask, streamlit); Experience with Git, Bash, Unix, SQL, Docker, Javascript, C++
Languages	English (native), German (native), Spanish (working proficiency), French (basic)
Interests	Ski Mountaineering, Strategic Board Games, Ballroom Dancing, Financial Modeling