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William Mau, PhD

Postdoc / Data Scientist

GitHub: wmau
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I am a neuroscience PhD with 9+ years of experience applying data science to neurobiology, using Python. I design my own experiments, then use machine learning, predictive modeling, and statistical analyses to identify patterns in my neuroimaging data to tell rich stories about how the brain works. My goal is to translate these skills to make tangible business impacts on a data science team.

Education

PhD in Neuroscience, *Boston University. GPA: 3.97* MAY 2019
BA in Biological Sciences and Psychology, *Cornell University. GPA: 3.79, magna cum laude* MAY 2014

Skills

Tools and Languages	Python, Jupyter notebooks, Git, SQL, MATLAB, Arduino
Quantitative Skills	Machine learning, predictive modeling, inferential statistics, data visualization, dimensionality reduction
Python Libraries	numpy, pandas, scikit-learn, scipy, matplotlib, statsmodels

Technical Experience

Postdoc / data scientist @ *Icahn School of Medicine at Mount Sinai, New York, NY* **2019 — Present**
- Spearheaded 3 team-based data science projects on cutting edge neuroimaging and cognitive neuroscience experiments.
- Communicated research findings and technologies at 6 conferences, to both technical and nontechnical audiences.
- Engineered an automated data collection, cleaning, and analysis pipeline that processed data from 100+ animal subjects.
- Used graph theory to build undirected networks from neuroimaging data.
- Built a random forest classifier to decode neural activity at ~80% accuracy.
- Acquired a >$190k federal award, produced 3 research articles, 1 preprint, and contributed to a Python analysis package that has been downloaded 11,000+ times.

Data science consultant @ *MetaCell, part-time* **2022 — Present**
- Advised clients in a customer-facing role on neuroimaging best practices and data analysis.
- Designed detailed custom analysis software that performed data cleaning and inferential statistics at clients' requests.
- Developed 5+ Juypter notebooks on a cloud workspace and presented findings to stakeholders.

Graduate researcher / data scientist @ *Boston University, Boston, MA* **2014 — 2019**
- Managed 2 team-based data science projects on neuroimaging and cognitive neuroscience experiments.
- Tutored novice programmers on the basics of Python in the context of data science in neurobiology.
- Used naive Bayes classification to decode neural activity 2x better than chance.
- Produced 5 research articles, 1 preprint, and secured 4 individual research awards totaling $1300.

Undergraduate researcher @ *Cornell University, Ithaca, NY* **2012 — 2014**
- Contributed to a team-based data science project on neural activity during memory recall.
- Investigated spatial coverage of neural activity using heat maps.
- Resulted in 1 research article, an individual $1000 research award, and magnua cum laude honors.

Select Publications

Dong Z., **Mau W.**, Feng Y., Pennington Z.T., Chen L., Zaki Y., Rajan K., Shuman T., Aharoni D., & Cai D.J. (2021). Minian: An open-source Miniscope analysis pipeline. *eLife*, under revision.

Mau W., Sullivan D.W., Kinsky N.R., Hasselmo M.E., Howard M.W., & Eichenbaum H. (2018). The same hippocampal CA1 population simultaneously codes temporal information over multiple timescales. *Curr. Biol.* 28, 1499-1508.
https://doi.org/10.1016/j.cub.2018.03.051

Notable Awards

Ruth L. Kirschstein individual postdoctoral fellowship: $194,790 over 3 years **2020-2023**
Henry I. Russek Day student achievement award, 3rd place and 1st place: total $1300 **2018-2019**
Magna cum laude in Psychology **2014**

Activities

Board member @ *Mount Sinai Neuroscience seminars board, leadership role* **2021 — present**
- Invited, reviewed, and hosted 11 guest speakers for our institutional neuroscience seminar series.

Instructor @ *Miniscope workshops* **2020 — present**
- Advised 50+ workshop attendees in hands-on workshops for using neuroimaging and our data analysis pipeline.

Lecturer @ *Icahn School of Medicine at Mount Sinai* **2020 — present**
- Lectured 30+ students at Mount Sinai graduate-level neuroscience courses.