Nhat Minh Le

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SUMMARY

6+ years of experience building and deploying machine learning models in computational neuroscience to detect patterns in diverse datasets (imaging, audio, behavioral, neural). Industry internship experience implementing efficient data pipelines on cloud infrastructures for collaborative tech startup teams. Interdisciplinary research interests in statistics and neuroscience. Passionate about applications of data in biology and biotech research.

EDUCATION

PhD Candidate, Brain and Cognitive Sciences and Statistics **2017-present**
Massachusetts Institute of Technology, Cambridge MA, GPA: 5.0/5.0
Thesis Topics: computational methods for automated decoding of behavior states, analysis of large-scale and single-cell neural data, state-space analysis of behavioral strategies in reinforcement learning, unsupervised analysis and manipulation of neural ensembles.

BS, Biology and Computer Science (minor) **2017**
California Institute of Technology, Pasadena CA, GPA: 4.2/4.3

TECHNICAL SKILLS

- **Data science:** Machine learning (deep neural networks, reinforcement learning, Tensorflow, Pytorch, decision trees, gradient boosting), predictive coding, Bayesian inference, generalized linear models, Hidden Markov Models
- **Cloud infrastructure:** AWS – S3, Athena, Glue, Lambda, RDS
- **Programming:** Python, SQL, functional programming, object-oriented programming, MATLAB, R, Mathematica
- **Web:** HTML, Javascript, web scraping and API integration

WORK EXPERIENCE

***Data consultant*, Findigs, New York, NY** **Nov 2021 - Present**
- Implemented ETL pipelines on AWS S3 with Lambda, reduced Athena SQL queries time by 5x and storage by 3x.
- Pioneered an applicant-risk evaluation system and rental pricing prediction model leveraging neural network and gradient-boosted decision-trees achieving 95% variance explained. Implemented explainable AI metrics (Shapley values) to ensure interpretable diagnostics of the models, helping to reduce model from 28 features to 8 core features.

***Data scientist,* Weave, New York, NY** **Oct 2021**
- Built social network graph of group interactions from multi-modal datasets, applied network centrality measures to identify communication bottlenecks and silos for three mid-sized startups (50-200 employees).
- Developed predictive regression models for hiring cost projections, replacing manual spreadsheet calculations.
- Integrated data from Microsoft Teams, Slack, Google calendar, deployed models on an interactive web application.

***PhD researcher*, Laboratory of Prof. Mriganka Sur, MIT Brain and Cognitive Sciences, Cambridge, MA** **2017 - 2022**
- Trained reinforcement learning and Bayesian models to predict choice sequences of rodents in a decision-making task, developed novel state-space models to achieve higher accuracy in behavioral predictions than existing methods.
- Built a generalized linear model to identify targets (widefield and single-cells) for optogenetic neural perturbations.
- Coordinated 5-member research team to execute behavioral training, collect imaging data & perform perturbation experiments guided by predictions from computational analysis.

***Participant*, Center for Brains, Minds and Machines Summer School, Woods Hole, MA** **2019**
- Selected as one of 30 students (out of ~300 students) for a 3-week intensive course on computational neuroscience, machine learning and artificial intelligence systems.
- Collaborated with scientists in neuroscience, cognitive and computational neuroscience to build a hierarchical reinforcement learning agent that successfully navigates (2.5x performance boost) in a multi-level structured maze.

***Undergraduate researcher*, Laboratory of Prof. Carlos Lois, Caltech Dept of Biology, Pasadena, CA** **2015 - 2017**
- Programmed a MATLAB interface for automated motion tracking of zebra finches (git: nhat-le/Finch_Movement).
- Developed a neural network-based software for automated detection of song syllables to trigger neural perturbations

LEADERSHIP & TEACHING EXPERIENCE

Organizer, Computational tutorials series for Brain and Cognitive Sciences **2020 – 2021**
- Led department-wide computational tutorial series with lectures and hands-on coding exercises.
- Identified key areas of interest, invited guest speakers, organized and recorded lecture materials.

Teaching Assistant, 9.60 Machine-motivated human vision **Spring 2020**
- Developed deep neural network tutorials for MIT undergraduates, supervised projects that combined machine-learning and human behavioral tasks. Received Award for Excellence in Undergraduate Teaching.

Teaching Assistant, 9.520 Statistical Learning Theory and Applications **Fall 2018**
- Led tutorials and office hours for an advanced graduate machine learning class at MIT.
- Mentored and evaluated advanced projects in machine learning and statistical learning.