ALEX NGUYEN

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EDUCATION

Princeton Neuroscience Institute, Princeton, NJ *09/2020 - Present*
PhD in Neuroscience

Minerva Schools at KGI, San Francisco, CA *09/2015 - 05/2019*
B.Sc. in Natural Sciences and Computational Sciences
Concentrating in Biophysics and Computational Statistics

RESEARCH EXPERIENCE

Princeton Neuroscience Institute, Princeton University *09/2019 - 08/2020*
Research Specialist
• Build neural network models of representational changes during statistical learning
• Use Go and the Emergent framework to build models and Python to analyze results

University of British Columbia Department of Chemistry *09/2018 - 09/2019*
Research Assistant
• Develop algorithms to efficiently solve quantum chemistry problems
• Solve Schrodinger's Equations efficiently using a modified Green's function method

Stanford University School of Engineering *06/2018 - 08/2018*
Research Intern
• Build a Node.js app that quantifies team dynamics and improves team effectiveness
• Implement natural language processing and sentiment analysis techniques in Python scikit-learn to measure team dynamics and identify effective interventions

University of British Columbia Department of Physics *05/2017 - 08/2017*
Research Assistant
• Develop tracking algorithms in C++ for the TREK experiment at the TRIUMF particle collider

Audible, Inc. *08/2016 - 08/2017*
Research Intern
• Develop a listening comprehension program using psychological principles from the science of learning
• Utilize quantitative research methods and implement a controlled experiment to test the effectiveness of the program

Stanford Artificial Intelligence Laboratory *05/2016 - 08/2016*
Research Assistant
• Implement a genetic algorithm in Python to reconstruct subjects' mental template of visual scenes

Ryerson University *05/2016 - 08/2016*
Research Assistant
• Build and analyze mathematical models if viral intracellular replication
• Develop a Python-based implementation of Markov Chain Monte Carlo to perform parameter inference in ODE models

TEACHING EXPERIENCE

Computational Neuroscience, Princeton University *01/2022 - 05/2022*
Graduate Assistant Instructor
- Assist Professor Carlos Brody in teaching undergraduate computational neuroscience course
- Prepared course activities, developed problem sets, and held office hours for student questions

Mathematical Tools for Neuroscience, Princeton University *09/2021 - 12/2021*
Graduate Assistant Instructor
- Assist Professor Jonathan Pillow in teaching undergraduate mathematical neuroscience course
- Prepared course activities, held office hours and appointments for student questions

Modeling, Simulation, and Decision Making, Minerva Schools at KGI *01/2019 - 05/2019*
Teaching Assistant
- Assist Professor Carl Scheffler in teaching undergraduate computational modeling course
- Prepared course activities, held office hours and appointments for student questions

Computational Statistics, Minerva Schools at KGI *09/2018 - 12/2018*
Teaching Assistant
- Assist Professor Carl Scheffler in teaching undergraduate Bayesian statistics course
- Prepared course activities, held office hours and appointments for student questions

Evolution at Multiple Scales, Minerva Schools at KGI *01/2018 - 05/2018*
Teaching Assistant
- Assist Professor Andy Dosmann in teaching undergraduate introductory biology course
- Prepared course activities, held office hours and appointments for student questions

LEADERSHIP AND AWARDS

- Canada Governor General's Academic Medal (2015)
- Britannia Gold Scholarship for Highest Achieving Scholar (2015)
- Ryerson University Undergraduate Summer Research Grant (2016)
- Canada National Science and Engineering Research Council Undergraduate Summer Research Awards (2017, 2018)
- Princeton Neuroscience Institute Recruitment Week Student Organizer (202

PUBLICATIONS

- **Alex Nguyen**, Kiel Howe (2019). "Learning Renormalization with a Convolutional Neural Network." Machine Learning and the Physical Sciences. Workshop at the 33rd Conference on Neural Information Processing Systems (NeurIPS).
- Victoria J.H. Ritvo, **Alex Nguyen**, Nicholas Turk-Browne, Kenneth A. Norman (2022). "Differentiation and Integration of Competing Memories: A Neural Network Model." *in submission.*