

School Address:
233 Massachusetts Ave
Cambridge, MA 02139

Quilee Simeon
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Home Address:
29 Garrison Ave
Somerville, MA 02144

EDUCATION:

Massachusetts Institute of Technology (MIT)

Ph.D. Student (Year 2), Department of Brain and Cognitive Sciences (BCS), Interdisciplinary Program in Statistics and Neuroscience

Expected Degree Date: June, 2027

B.S. in Computation and Cognition, Minor in Statistics and Data Science, GPA: 4.9/5.0

Degree Date: June 6, 2021

Relevant Coursework: AI & ML, Statistics & Data Science, Statistical Learning, Discrete Math, Linear Algebra, ML-Based Therapeutic Design, Computer Vision, Neural Computation & Circuits, Computational Neuroscience, Developmental Biology, Molecular & Cellular Neuroscience.

Cambridge, MA
Sept 2021 — present

Cambridge, MA
Sept 2017 — June 2021

RESEARCH EXPERIENCE:

Neurophysics of Locomotion

Summer course participant (Flying-flies module, PIs: Dr. Bradley Dickerson & Dr. Jessica Fox)

- Build fly-tethering, optogenetic and high-speed video capture rigs.
- Performed experiments to elucidate how motion and trajectory of fruit-fly halteres controls flight.
- Performed image tracking and analysis. Imaged fly with digital microscope. Prepared figures and final presentation.

Santa Barbara, CA
July 2022 — August 2022

BCS Lab Rotations

Graduate Researcher (Fiete & Yang Lab)

- Developed computational models of results from approach-avoidance tasks in non-human primates.
- Implemented spiking and rate based RNN models of cognitive behavioral tasks.
- Trained reinforcement learning models (using PyTorch and OpenAI Gym) to perform a cost-benefit tradeoff decision making task originally designed for non-human primates (NHPs).
- Compared the performance of these networks against the behavioral performance of NHPs.

Cambridge, MA
Oct 2021 — Feb 2022

MIT Undergraduate Research Opportunities (UROP), McGovern Institute for Brain Research

Undergraduate Researcher (Graybiel Lab)

- Implemented behavioral apparatuses for cognitive assays in mice. This involved the construction of Arduino electronics and fabrication of hybrid electrophysiological neural interfaces.
- Applied experimental systems neuroscience approaches to study a mouse model of Huntington's disease.
- Wrote image analysis code for analyzing neuron cytoarchitecture in histological sections of the striatum.
- Built semi-automated animal behavior analysis pipeline making use of advanced imaging and machine learning techniques. Software: DeepLabCut, Python, C++. Hardware: Arduino circuits, Raspberry Pis.
- Applied computer vision models involving DeepLabCut to analyze stereotyped and repetitive behaviors in animal models of SHANK-protein mediated Autism Spectrum Disorder (ASD).

Cambridge, MA
June 2018 — Dec 2020

WORK EXPERIENCE:

Triplet Therapeutics

Bioinformatics & Software Development Intern

- Extended the machine learning model for antisense oligonucleotide (ASO) efficacy prediction built in previous role. Improved the automated pipeline for small molecule drug design built in previous role.
- Developed web and command line applications for guiding small-molecule drug design and development decisions. The web app also formatted sequences using internal, patented oligo-design templates.
- Deployed a deep neural network model to analyze and accurately predict the gene knockdown efficacy of siRNA and ASO molecules with the aim of discovering drug candidates for rare neurological disorders.

Cambridge, MA
Jan 2021 — March 2021
July 2019 — Sept 2019

MIT International Science and Technology Initiatives (MISTI)

MIT-Brazil Remote ELO Intern, Project Assistant & Student Ambassador

- Worked on an Artificial Biomedical Imaging Project in collaboration with the Albert Einstein Education and Research Israeli Institute as a remote Experiential Learning Opportunity (ELO).
- Applied computer vision techniques to describe and predict the migration of leukemia cells and their cellular interactions with tissue micro-environments in response to chemotherapy.
- Facilitated more opportunities for MIT students interested in the intersection of the natural sciences and engineering to travel to Brazil for summer internships and research opportunities.
- Brainstormed innovative collaborations to make use of biotech in Brazil and Latin America to solve difficult problems in agriculture and medicine.

remote
June 2020 — Aug 2020

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TEACHING EXPERIENCE:

MIT Global Teaching Labs (GTL)

Instructor - Wales

- Designed and presented multidisciplinary courses reflective of the type of critical thinking and problem solving skills required of a lifelong learner:
 1. SSH and Data Processing : how to set up, gather and process experimental data remotely;
 2. Coding Complexity and Chaos : combining computer science, art and mathematics;
 3. Neurotechnology : seminar on technology at the intersection of computation and cognition.

Cardiff, Wales
January 2020

Instructor - South Africa

- Taught intro level courses in computer science, neuroscience and neurotechnology to high school students from across countries in southern Africa as part of an independently developed curriculum for the first ever GTL program on the African continent.

Johannesburg, ZAF
January 2019

Teaching Assistant

Emergent Computations in Distributed Neural Circuits

- Prepared and taught tutorials in linear algebra, computing, dynamical systems, and neural networks.

Cambridge, MA
January 2021 — present

Tutor and Lab Assistant

Fundamentals of Programming

- Participated in weekly meetings plan course content and code labs from scratch.
- Revised coursework on image processing, recursion, dynamic programming and data structures.
- Provided students with technical and conceptual help during virtual and in-person office-hours.

Cambridge, MA
Sept 2018 — Dec 2019

Introduction to Neural Computation

- Hosted weekend tutoring sessions to review topics like mathematics of neurons, neural nets, statistical inference, and data analysis in neuroscience.

Cambridge, MA
Feb 2019 — May 2019

VOLUNTEERING & D.E.I.:

MIT Black Student Union (BSU)

Social Chair

- Collaborated to organize social events celebrating the black/African-American MIT community.
- Point-of-contact for guest speakers and performance groups at BSU social events.
- Maintained mailing lists and informed members of upcoming events.

SKILLS:

Computer: Programming (decreasing order of proficiency): Python, MATLAB, HTML, JavaScript, React, CSS, C, PHP, R, SQL; machine learning, bioinformatics, statistics, data analysis, spreadsheets

Language: French (spoken), German (beginner)

Professional: public speaking, leadership, project management

LEADERSHIP:

IEEE-HKN Beta Theta Chapter

Co-President

Caribbean Science Foundation

SPISE 2020 Computer Programming Instructor

- Developed Caribbean students' understanding of concepts and fundamental principles in computer programming, so that they gain enough mastery to apply to solve problems requiring critical thinking.
- Acted as a mentor and role model for the students and provided guidance and advice on university and the possible challenges they may encounter in academic and professional life.
- Taught students the importance of teamwork, efficient study habits, and time-management skills.

MIT CLUBS/ACTIVITIES:

Admissions Tour Guide, Caribbean Club, Black Student Union, Theta Chi Fraternity (Beta Chapter)

HONORS:

- Member of Beta Theta (MIT) Chapter of Eta Kappa Nu (National Honor Society)
- Oxford Rhodes Finalist for the Commonwealth Caribbean

SOCIETIES/ORGANIZATIONS: Caribbean Diaspora for Science Technology and Innovation — New England (CADSTI-NE), Eta Kappa Nu (IEEE-HKN), Theta Chi Fraternity