# Nga Yu Lo

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## EDUCATION

**Macaulay Honors College at Hunter College**
Bachelor of Arts, Expected May 2022 GPA: 3.9
Majors: Mathematics, Computer Science
Full merit scholarship to Macaulay Honors College (4 years)
Pi Mu Epsilon, 2021
The Isabel Weil Cros Award for Excellence in Mathematics, 2021
John P. McNulty Scholarship for Leadership in Science and Math (2 years)

## RESEARCH EXPERIENCE

**Research Assistant/Guest Researcher**
**Flatiron Institute of Simons Foundation**, NYC, NY, September 2021-Present

- Work with Dr. Sueyeon Chung on analyzing the geometry of underlying neural and feature representations and constructing neural network models guided by neuroscience
- Using methods in statistical physics and machine learning, develop extensions of perceptual manifold theory to study the untangling of feature representations in deep neural networks

**Research Intern, Massachusetts Institute of Technology Summer Research Program**
**Massachusetts Institute of Technology**, Cambridge MA, June 2021-August 2021

- Worked in Dr. James DiCarlo's lab under the supervision of Dr. Tiago Marques, focused on understanding the neuronal algorithms and circuits underlying visual object recognition
- Evaluated and improved the performance of computational models on object recognition tasks to predict the behavioral output of the human visual system given out-of-distribution stimuli

**Research Intern, Englander Institute of Precision Medicine Internship**
**Weill Cornell Medical Center,** NYC, September 2020-May 2021

- Developed learning models for predicting sleep disorder in Dr. Olivier Elemento's lab, focused on innovative approaches to better diagnose, treat, and prevent diseases using high performance computing, math modeling, and artificial intelligence/machine learning
- Wrote python scripts to process sparse data of sleep patients at the Sleep Neurology Division at Weill Cornell and build a multivariate logistic regression and a random forest model to predict sleep apnea

**Research Intern, Research Experience for Undergraduate, funded by NSF**
**Oregon State University**, June 2020-August 2020

- Worked on modeling epidemics using SIR-macro models to study the relationship between economic factors and epidemics under the supervision of Dr. Juan Restrepo
- Implemented a compartmental model of susceptible, infected and recovered population on python and studied Stochastic methods to design a time-dependent economic model with a random characteristic

## PRESENTATIONS

Presented "Evaluating Object Recognition Behavior Consistency on Out-of-Distribution Stimuli" at Hunter College Applied Math Seminar, Hunter College, October 28, 2021.

Presented "Evaluating Object Recognition Behavior Consistency on Out-of-Distribution Stimuli" at MIT Summer Research Program, MIT, August 5, 2021.

Presented "Predictive Model for Obstructive Sleep Apnea using Machine Learning Methods" at the annual Undergraduate STEM Research Conference, Hunter College, May 6-7, 2021.

## WORK EXPERIENCE

***College Assistant,* Hunter College Dolciani Math Learning Center,** NYC, August 2019- Present

- Working in the walk-in tutoring center, reinforced students' understanding of precalculus and calculus in preparation for classes in the sciences and advanced mathematics
- Working in the classroom, assisted students with completing their classwork by answering questions and reinforcing materials through additional examples
- Tutored students in one-to-one sessions providing individualized approach

***Undergraduate Teaching Assistant,* Hunter College Computer Science Department,** NYC, August 2020-May 2021

- Tutored students of the Introduction to Computer Science course in Python and C++ programming language, including Python packages such as Matplotlib, Numpy, Pandas, and Folium
- Helped students complete programming assignments by using examples from lectures to strengthen their critical thinking skills in problem solving and debugging, while motivating them to work independently

## PROFESSIONAL DEVELOPMENT

**Quantitative Methods Workshop Participant**
**Massachusetts Institute of Technology,** January 4-9, 2021

- Attended week-long intensive workshop learning MATLAB to analyze data from biology and neuroscience experiments
- Led a diverse group of students across different campuses of the US in collaborative exercises
- Attended lectures on current research topics from MIT faculty in the biology department and the Center for Brains, Minds, and Machines

**Autonomous Navigation Workshop, funded by Google Research explorCSR Program**
**Hunter College,** NYC, January 13-16, 2020

- Worked in teams to program small autonomous vehicles using Raspberry Pi platform, running Robot OS and Ubuntu
- Collected and analyzed data from autonomous agents, focusing on image capturing and simplified lane following to navigate a scaled-down city track

## RELEVANT COURSEWORK:

Advanced Probability Theory (Graduate Level)
Measure Theory (Graduate Level)
Functional Analysis (Graduate Level)
Mathematical Real Analysis
Calculus with Analytic Geometry
Linear Algebra
Artificial Intelligence
Machine Learning
Deep Learning
Software Analysis and Design (Data Structure)
Numerical Methods
Bayesian Statistics

**SKILLS:** Python (Scikit Learn, Pytorch, Matplotlib, Numpy, Scipy, Pandas), C++, Julia, MATLAB, Slurm, Latex, Microsoft Office, GIMP Photoshop, Inkscape

**GITHUB:** https://github.com/ngayulo

**LANGUAGES:** Cantonese (*native*); Spanish (*intermediate);* German (*intermediate)*