Nga Yu Lo

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EDUCATION

University of Washington *PhD, Applied Mathematics, 2024 - expected 2029*
Boeing Endowment for Excellence Fellowship (3 years) *Master of Science, Applied Mathematics, 2026*
ARCS Fellowship (3 years)

Macaulay Honors College, City University of New York *BA, Mathematics and Computer Science, 2018 - 2024*
John P. McNulty Scholarship for Leadership in Science and Math (2 years)

RESEARCH EXPERIENCE

Autoencoders for Measure-Valued Data *(in progress)*
Advisor: Dr. Bamdad Hosseini University of Washington WA, 01/2026 - present

- Developing autoencoders for measure-value data (point-cloud data, noisy trajectories) to produce conditional generative models and discover latent structure.
- Encode point-clouds as kernel mean embeddings or learned feature maps. Construct transport map (decoder) conditioned on encoded measure using conditional flow matching and minimal maximum mean discrepancy.

Mechanistic Interpretability in TSFM *(manuscript submitted to ICLR 2027)*
Advisor: Dr. Nathan Kutz University of Washington WA, 01/2025 - 09/2026

- Characterized how Chronos, a pretrained time series foundation model, encodes temporal structure by defining attention-head metrics on locality and periodicity.
- Discovered that Chronos attends to localized neighborhoods and retains frequency information.
- Through layer ablation, correlated forecast accuracy to layers with local and periodic attention structure.

Neural Manifold Geometry in Neural Nets
PI: Dr. SueYeon Chung
Center for Computational Neuroscience, Flatiron Institute Flatiron Institute, NYC, 06/2022 - 06/2024

- Developed extensions of perceptual manifold theory towards interpreting geometry (radius, dimension) and organization of neural manifolds in deep neural networks and real neural data. [youtu.be/ccG6ctQpUZY?t=4201]
- Managed internal lab affairs including maintaining codebase and coordinating project meetings.

Evaluation of Visual Deep Neural Nets for Alignment with Human Behavior
PI: Dr. Jim DiCarlo Massachusetts Institute of Technology, MA, 06/2021 - 08/2021

- Evaluated the behavioral alignment of computational vision models and the human visual system.
- Benchmarked the performance of computational models on object recognition tasks to predict the behavioral output of the human visual system given out-of-distribution stimuli. [GitHub: behaviorConsistencyOOD]

PUBLICATIONS AND PRESENTATIONS

"Representational geometry of hierarchical category structures in the monkey inferotemporal cortex." Nga Yu Lo, Roozbeh Kiani, and Sueyeon Chung. *Cosyne 2024* (youtu.be/ccG6ctQpUZY?t=4201)

"Efficient Neural Representation in the Cognitive Neuroscience Domain: Manifold Capacity in One-Vs-Rest Recognition Limit." Nga Yu Lo and Sueyeon Chung. *preprint 2023* (tinyurl.com/sparse-capacity)

WORK EXPERIENCE

College Assistant Hunter College Dolciani Math Learning Center, NYC, 08/2019- 05/2022

- Working in the walk-in tutoring center, reinforced students' understanding of precalculus and calculus.
- Working in the classroom, assisted students with completing their classwork by answering questions and reinforcing materials through additional examples. Additionally tutored students in one-on-one sessions providing individualized approach

Undergraduate Teaching Assistant Hunter College Computer Science Department, NYC, 08/2020 - 05/2021

- 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 with 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 Massachusetts Institute of Technology, MA, 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 data analyses exercises

Autonomous Navigation Workshop Hunter College, NYC, January 13-16, 2020

- Worked in teams of 3-4 students 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
- Funded by Google Research explorCSR Program

RELEVANT COURSEWORK:

Advanced Probability Theory	Artificial Intelligence
Measure Theory	Machine Learning
Functional Analysis (Kernel Methods)	Deep Learning
Asymptotic Analysis	Software Analysis and Design (Data Structure)
Bayesian Statistics	Optimization

SKILLS: Python (Pytorch, Jax, Tensorflow, Scikit-Learn), HuggingFace, Slurm (for training models in parallel) , MATLAB, C++

LANGUAGES: English (fluent); Cantonese (native); German (intermediate)