

TOMOHIRO OGA

+1 (508)-439-7701 ✦ oga.t@northeastern.edu ✦ [LinkedIn](#) ✦ [GitHub](#)

Availability: January 2025 - June 2025 ✦ Boston, MA

EDUCATION

Khoury College of Computer Sciences at Northeastern University, Boston, MA *September 2023 - May 2027*

B.S. Data Science, Physics Minor, Math Minor

GPA: 3.9/4.0

Relevant Coursework: Database Design, Advanced Programming with Data, Discrete Structures, Fundamentals of Computer Science I and II

Hopkinton High School, Hopkinton, MA

August 2019 - June 2023

AP Scholar with Distinction

GPA: 4.5/4.0

TECHNICAL SKILLS

Languages Python, Java, Swift, C, Kotlin

Tools TensorFlow, PyTorch, NumPy, Pandas, Git

Knowledge Machine Learning, Deep Learning, Knowledge Assembly, Data Science and Engineering, Object-Oriented Design, Natural Language Processing, Version Control

WORK AND RELATED EXPERIENCES

ML/AI Research Assistant, Gyori Lab, Boston, MA

June 2024 - Present

- Contributed to the TrialSynth project by integrating clinical trial data from multiple registries into a computable knowledge graph, standardizing biomedical entities using unique concept identifiers.
- Proposed and implemented a mesh prefix tree restriction approach to improve the quality of the NER algorithm, which led to a ~17% increase in precision of recognizing biomedical entities.
- Researching an LLM approach to extracting genomic variants from inclusion/exclusion criteria for better precision medicine.

Teacher, CodeWhiz, Westborough, MA

December 2022 - February 2023

- Taught groups of ~20 students, ages 11-14, how to code in Python, Java, and Scratch through an interactive environment
- Tailored teaching methods to individual students' needs, developing customized lesson plans to enhance learning outcomes.

PROJECTS

Frame Interpolation using ConvLSTM and Residual Learning

December 2023 - February 2024

- Recreated Suzuki *et al.*'s work on "Residual Learning of Video Frame Interpolation Using ConvLSTM."
- Leveraged PyTorch's nn.Module library to build a model from scratch, and created a custom DataLoader for training.

ConvLSTM for MLX

March - April 2024

- Developed the Convolutional LSTM structure as discussed in Shi *et al.*'s work of "Convolutional LSTM Network: A Machine Learning Approach for Precipitation Nowcasting." for Apple's array framework library MLX, which utilizes the shared memory pool for Apple Silicon CPUs and GPUs for efficient training.

Etherium AI Investor

July 2022

- Trained a custom LSTM using TensorFlow on historical ethereum data, with 10 time-steps as input to predict the next time-step.
- Leveraged OpenAI's Gym library with Proximal Policy Optimization (PPO) to train an agent to either buy, sell, or hold based on the current state of market and LSTM prediction.

