James Ngai

Personal Website | LinkedIn | GitHub

Location: Seattle, WA

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Education

Carnegie Mellon University

BS Computer Science — *Aug 2022 – May 2026*

GPA: 3.88/4.0

Experience

Machine Learning Researcher — Jan 2023 – Present

Carnegie Mellon ZUZ Lab — *Pittsburgh, PA*

- Research under Professor Seth Goldstein in developing pricing algorithms for **multi currency crypto transactions**
- Develop **Agent-Based Model** with **Reinforcement Learning** and **Game Theory** to simulate **real-world** trading
- Reduced **convergence time** on **average 43%** and increased **model accuracy 26%** with **Epsilon-Greedy Q-Learning**
- Enhanced reliability of **60,000 parameter model** testing on **Google Cloud** by **implementing a ledger system** to restore progress in case of failures
- Named **National Science Foundation** Summer Undergraduate **Research Fellow**, awarded **$4500 grant** for **Machine Learning** research

Teaching Assistant — Feb 2022 – Sept 2022

Expii/Daily Challenge/Po Shen-Loh — *Remote*

- Co-taught classes in **combinatorics** and **algebra** for **40** students doing **AMC** and **MATHCOUNTS** competitions
- Accelerated TA training by **mentoring 10 junior TAs monthly**, fostering strong team cohesion for classes

Software Developer — Jun 2018 – Jun 2022

Allstate Hale Insurance — *Seattle, WA*

- Led development of mailer ad software for **70,000** prospective clients **saving $10000 annually**
- Corrected **15%** of all **ad data** by **cross-validating** SalesGenie data with King County **REST APIs** in **Python**
- Improved **Ad Efficiency by 27%** and runtime by **75%** with **multithreading**

Projects

eBay 2023 Machine Learning Competition — *PyTorch, SpaCy, BERT, Pandas, NumPy* — Source Code Confidential

- Achieved **6th place** in 2023 eBay Machine Learning Competition among a field of master's students
- Peformed **NER** on German athletic wear using **BERT NLP model**, K-Cross Fold validation, and hyperparameter tuning

ScottyLabs: CMU Lost and Found — *React.js, MongoDB, Node, Git, TypeScript* — Source Code

- **Streamlined 120 returns per month** by redesigning **MongoDB** database to store admin emails
- Updated **Front-End React** to enhance information clarity for Carnegie Mellon admins

Technical Skills

Languages : Python, C, Java, JavaScript, HTML, CSS, Git, SML, Julia, LaTeX

Technologies : NumPy, Pandas, Sklearn, Matplotlib, TensorFlow, PyTorch, MongoDB, SciPy, Linux Terminal

Relevant Coursework

15-122 Data Structures & Algorithms, **15-251** Theoretical Computer Science, **21-241** Linear Algebra, **21-266** Vector Calculus

Awards

- AMATYC Student Math League **4th in Nation**
- DECA ICDC Certificate of Excellence — **Top 1% in world** at Financial Decision Making