James Ngai

Personal Website | LinkedIn | GitHub |

Location: Seattle/Pittsburgh
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Education

Carnegie Mellon University
Bachelor of Science in Computer Science — *Aug 2022 – May 2026*
GPA 4.0/4.0

Experience

Research Assistant — Jan 2023 – Present
Carnegie Mellon ZUZ Lab — *Pittsburgh, PA*

- Research under Professor Seth Goldstein in developing pricing algorithms for **multi currency crypto transactions**
- Built **local resale model** that detects **arbitrage opportunities** in sparse graphs to model multicurrency economies
- Derived **analytic solution** for pricing algorithm that leverages multiple **circular trading graphs**
- **Validated ABM** with **real-world data** from deployment of BoLT economy in city of Sharpsburg

Teaching Assistant — Feb 2022 – Sept 2022
Expii/Daily Challenge/Po Shen-Loh — *Remote*

- Co-teached classes of **40** students for **AMC** and **MATHCOUNTS** competitions
- **Mentored** 10 junior TAs during monthly meetings for **improved team integration**

Software Developer — Jun 2018 – Jun 2022
Allstate Hale Insurance — *Seattle, WA*

- Led development of mailer ad software for **47,000** prospective clients saving $5000 annually
- Worked with **REST APIs** to retrieve and display data from **databases** in **Python**
- Improved **Ad Efficency by 27%** and speed through optimization techniques by **75%** with **multithreading**

Projects

TartanHacks: CMU Marketplace — *React.js, Firebase, Git* — Source Code

- Designed and developed a clean and modern website using **HTML, CSS, and JavaScript**
- Optimized website for **speed and user experience**
- Utilized **Firebase** to store login info and auction items

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

- Modified **MongoDB** database to store admin emails for streamlined return experience
- Updated **Front-End** to optimize information clarity for admins

Technical Skills

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

Libraries : NumPy, SciKit, SciPy, MatPlotLib, TensorFlow, Pandas

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 Decison Making
- Robotics Team **8th in world** at **FIRST** Game Design Challenge