

# James Ngai

Personal Website | [LinkedIn](#) | [GitHub](#) |

Location: Seattle/Pittsburgh

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## EDUCATION

### Carnegie Mellon University

Bachelor of Science in Computer Science  
GPA 4.0/4.0

Aug 2022 – May 2025

## EXPERIENCE

### Research Assistant

Carnegie Mellon ZUZ Lab

Jan 2023 – Present

Pittsburgh, PA

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

### Teaching Assistant

ExpII/Daily Challenge/Po Shen-Loh

Feb 2022 – Sept 2022

Remote

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

### Software Developer

Allstate Hale Insurance

Jun 2018 – Jun 2022

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