

# KARL XIAO

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## EDUCATION

**Carnegie Mellon University, School of Computer Science**

**Graduating May 2022**

**Degree** B.S. in Computer Science, B.S. in Computational Finance

**GPA:** 3.84/4.00

*Pittsburgh, PA*

**Coursework** Imperative / Functional Programming, Algorithms, Computer Systems, Linear Algebra, Mathematical Finance, Calculus, Probability and Statistics, Economics, Accounting

## WORK EXPERIENCE

**15-251 Great Theoretical Ideas in Computer Science, School of Computer Science**

**Jan 2020 –**

*Course Tutor*

*Singapore, Singapore*

- Meet 1-on-1 with a tutee for two hours per week to review important ideas from class such as Turing Machines, Graph Theory, P vs NP, and Cryptography, and practice solving conceptual problems

**Summer Undergraduate Research Program in Computational Finance**

**Jun 2019 | Jul 2019**

*Research Associate*

*Pittsburgh, PA*

- Investigated under the guidance of Dr. William Hrusa the pricing of Forex options under various interest rate, volatility, and payoff assumptions within the Binomial and stationary Black-Scholes frameworks
- Performed Python and C simulations to show the convergence of early exercise boundaries in multi-period Binomial models to values predicted by the stationary Black-Scholes ODE for perpetual options
- Visualized simulation results of asset pricing using Matplotlib's scientific graphing functionalities

**MoneyThink CMU**

**Jan 2019 | Dec 2019**

*Mentor Captain*

*Pittsburgh, PA*

- Provided weekly 1-hour mentorships for 20+ High School Juniors and Seniors at various local high schools on personal finance topics such as savings, credit cards, loans, taxes, and college preparation
- Headed a 3-man team in coordinating with school authorities and delivering presentations at each session

**Munich Re Singapore Branch**

**Nov 2017 | May 2018**

*Intern, APAC1 Life Valuation*

*Singapore, Singapore*

- Harnessed Excel's VBA Macros to optimize data consolidation from regional offices and determine key indicators such as fund solvency and Embedded Value that are required for statutory reporting
- Scrutinized and summarized in an Excel-based dashboard the features and performance of 40+ overseas reinsurance treaties that were slated for incorporation by mid-2018 into Singaporean accounts

## PERSONAL PROJECTS

**Memory Allocator**

**Mar 2020 -**

*Languages/ Frameworks: C*

*Pittsburgh, PA*

- Designed and implemented a Dynamic Memory Allocator using a segregated, explicit free-list algorithm to achieve high throughput and utilization, as part of the class 15-213 *Introduction to Computer Systems* at CMU

**Personal Website**

**Dec 2019 -**

*Languages/ Frameworks: HTML, CSS, JavaScript, Bootstrap*

*Pittsburgh, PA*

- Maintain a personal portfolio and documentation of college life using basic Front-End development tools

**Stock Market Tracking**

**Summer 2018**

*Languages/ Frameworks: Get and Transform (Excel), Power Query M, VBA, XML, Google Sheets*

*Singapore, Singapore*

- Created an Excel spreadsheet that linked to real-life/ time-series data on Google Sheets and Google Finance
- Used *Get and Transform* and VBA to extract and consolidate the data for use in Excel-based technical analysis

## HONORS

Putnam Competition 2019, *Top 600 / 3500 Participants*

**Dec 2019**

Quantathon 2019, *Honorable Mention (Top 7 of 53 teams), Carnegie Mellon University*

**Feb 2019**

Keith Block Entrepreneurship Competition, *1st Place, Carnegie Mellon University*

**Nov 2018**

## SKILLS and INTERESTS

**SOFTWARE and PROGRAMMING:** Python, C, Linux, R, HTML/CSS/JavaScript, Standard ML, Java, VBA

**LANGUAGES PROFICIENCY:** English (native), Mandarin (native), French (fluent), Spanish (basic)

**EXTRACURRICULAR INTERESTS:** Running, Backpacking, Symphonic Band (Saxophone), Watching Old Movies