IONKENG HO

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EDUCATION

Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Expected Coursework:*** object-oriented programming (Java), penalized regression, linear regression, Fama-French, Black-Scholes, stochastic processes, Hull-White model

09/18 - 06/22 **UNIVERSITY OF CALIFORNIA SANTA BARBARA** Santa Barbara, CA
B.S. in Physics and B.S. in Financial Math & Statistics
- ***Coursework:*** vector calculus, linear algebra, partial differential equations, complex analysis, numerical methods, stochastic process, Cramér–Rao bound, MLE estimation, Hamiltonian mechanics, thermodynamics, Schrödinger equation, Maxwell equations, public speaking
- ***Honors/Awards:*** High Honors (Top 8% GPA in College of Letters and Science)

EXPERIENCE

01/22 - 03/22 **UNIVERSITY OF CALIFORNIA SANTA BARBARA** Santa Barbara, CA
Learning Assistant, Special Relativity Class
- Held weekly office hours to answer students' questions about course material and homework; graded 30 assignments and exams
- Discussed students' performance with professor; participated in selecting homework problems

08/21 - 09/21 **SHENZHEN TENGYIN INFORMATION CONSULTING** Shenzhen, China
News Department Assistant
- Researched financial news daily; drafted 20 morning briefings to customers by summarizing news and predicting how it may affect global markets
- Organized and analyzed provincial government debt data; wrote comprehensive report on local governments' financial conditions for inclusion in company publication

PROJECTS

04/22 - 06/22 **UNIVERSITY OF CALIFORNIA SANTA BARBARA** Santa Barbara, CA
Solving Acoustic Wave Equations Using Crank-Nicolson Method (Python)
- Proved stability of Crank-Nicolson Method; used it to write simulation of wave equation into linear system of equations in lexicographical order
- Applied ADI algorithm to solve linear system; obtained approximate solution, which achieved less than 1% deviation from exact solution

01/22 - 03/22 **Pricing Multiple Options With Black-Scholes Formula** (Python)
- Derived Black-Scholes equations from Ito's lemma; learned about different kinds of options (e.g., European, American, and Asian)
- Used Monte-Carlo method to simulate geometric Brownian motion behind Black-Scholes model by taking large N up to 10^6, which achieved error reduction at rate of 1 over N

09/21 - 12/21 **Applying Machine Learning in Finding Relationships Between Poverty and Education Level** (R)
- Pruned data from United States county-level census and education using PCA to 12 PCs while capturing 90% of variance
- Applied decision tree and logistic regression to pruned data; observed that poverty level of counties was strongly related to number of people who had less than a high school diploma
- Used cross-validation to optimize parameters used in above models; reduced test mean square error by 20%

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java, Python, R
Languages: English (fluent), Cantonese (native), Mandarin (native)
Activities: 2018 International Physics Olympiad Macau Team; won 4th place in UCSB poker tournament