Dongxu Li

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About Me

- **Technologies**: Python/(PANDAS, numpy, Jax.numpy), C++, Matlab, Latex(Lyx), Git, Vim, Bash(basic)
- **Mathematics Background**: Fundamental Calculus, Linear Algebra, Numerical Method, Advanced Optimization, Applied Statistics, Dynamic Programming(Reinforcement Learning)
- **Finance Background**: Fixed Income Product, Derivative Pricing Theory and Portfolio Theory

Experience

- **PGIM Quantitative Solutions** Newark, NJ
  Quantitative Research Intern (target on private asset modeling) *June 2021-August 2021*
  - **Collaboration**: Collaborated with the PGIM-IAS team to gather private assets data from Burgiss and develop the modeling ideas to measure the return and risk of private assets without the cash flow level data.
  - **Detailed Modeling**: Linked the private asset returns with the existing public asset returns in the Capital Market Assumptions(CMAs) framework, and generated 10-year long-term performance forecasts on Private assets, including Mezzanine Debt, Buyout, and Venture Capital.
  - **Results**: Presented the results in 3 company-level research meetings. The investment council approved the modeling approach and used it to complete the CMAs framework and generate quarterly published Capital Market Assumptions Reports.
  - **Other Initiatives**: Dived into NCREIF data and brainstormed on decomposing the private real estate return into income, growth, and valuation adjustment.
- **Stevens Institute of Technology** Hoboken, NJ
  Research Assistant, Teaching Assistant and Lab Course Lecturer *Aug 2018 - Present*
  - **Research Assistant - Research Area**: Adaptive Agent-Based Modeling of Economic Systems: Model the life cycle of American households using finite time horizon Markov Decision Process. Explore the population's consumption, investment, retirement, and adaptive behavior and wealth accumulation pattern. Write highly efficient Python, C++ code to solve MDP and simulate the population by taking advantage of multiprocessing and multithreading.
  - **Teaching Assistant - Stochastic Calculus for Finance II: continuous model**: Materials cover: Intro to probability models and definition of sigma-algebra, martingales, Markov property, stochastic(Ito) integrals, and stochastic differential equations. General option pricing, hedging framework, and interest rate models.
  - **Lab Course Lecturer: FE 522 C++ programming in Finance**: Materials cover: Fundamental concepts, syntax, data structure, Object-Oriented Programming philosophy, Monte Carlo simulation with applications on option pricing, and portfolio construction.

Education

- **Stevens Institute of Technology** Hoboken, NJ
  PhD candidate in Financial Engineering; Advisor: Steve Yang, Victor Xi Luo; GPA: 4.00 *Aug. 2018 – Present*
  - **Paper presented at WEA Conference, Fed, SEC**: Endogenous Stock Market Participation and Wealth Accumulation: A Life-Cycle Model Perspective
- **University of Michigan** Ann Arbor, MI
  Master of Science in Quantitative Finance; Advisor: Johannes Muhle-Karbe; GPA: 3.92 *Aug. 2016 – Dec. 2017*
- **Dalian University of Technology** Dalian, China
  Bachelor of Science in Information And Computational Science; GPA: 3.88 *Sep. 2012 – July. 2016*

Honor and Personal Project

- **Honor**:
  - **Provost Doctoral Fellowship**: Top one percent in academic and professional pursuits
  - **WorldQuant International Quant Championship**: Stage 1 rank: 4/3000 US Region (2019), Stage 2 rank: 15/200 US Region (2019)
  - **WorldQuant Challenge (2019)**: Gold Level Certificate Score: 19250, rank 218/13931, Research Consultant Job Offer
  - **Stevens High Frequency Trading Competition(Annual Event)**: Major Organizer
- **Personal Projects**: *Price Binary Option*, *Dimension Reduction on US Treasury Dataset*, *Network Visualization of SP500*. More projects on: *Personal Website*