SHIQI PAN

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Education

Smith College, Bachelor of Arts　　　　　　　　　　　　　　　　　　**Sep. 2017 – Jan 2021**
Double Major in Computer Science, Mathematics　　　　　　　　　　　　*Northampton, MA, USA*
- Major GPA: 3.9/4.0
- Dean's List(top 10%): 2017-2018, 2019-2020
- Courses: (Grad-level)*Computer Vision, Applied Mathematical Optimization, Randomized Algorithms and Probabilistic Data Analysis, Advanced Algorithms*; (Related)*Discrete and Computational Geometry, Advanced Calculus*

Research

Stock Prediction and Trading with Deep Learning　　**Dec 2020 - Mar 2021, May 2023 - Present**
LSTM, Deep RL, Stock Prediction, AI Trading　　　*University of Massachusetts,Amherst / Independent Research*
- <u>Stock Prediction</u>: Developed ARIMA, LSTM, Bidirectional-LSTM models, and Attention mechanism for stock opening price prediction. Evaluated the models on bear v.s. bull markets in S&P 500 and Chinese SSE Composite Index, demonstrating the superiority of DL models and especially Attention Bi-LSTM (RMSE: 0.0127).
- <u>Portfolio Optimization</u>: Investigated LSTM-predicted price with "Buy Low Sell High" strategy, Deep Q-Network and Actor-Critic models for return maximization, outperforming benchmark long positions.
- <u>FinRL</u>(Ongoing): Implement FinRL, an open-source framework, for Portfolio Optimization with RL models.

Catching the Robber: Cops and Robber Game　　　　　　　　　　　**Jan 2023 - May 2023**
Theoretical Computer Science, Graph Theory, Combinatorics　　　　　　　　　*Independent Research*
- <u>Robber Locating Game</u>: Purposed a Cop Strategy Graph based on decision trees to analyze the big-O relationship between cop number and subdivision number; improved upon previous results and established a formal bijection between the two variables, expressing the non-linear relation explicitly with capture time.
- <u>Survey</u>: Conducted a comprehensive survey on variations of the Cops and Robber Game and prevailing approaches.

Dropout in CNN　　　　　　　　　　　　　　　　　　　　　　**Sep 2020 - Dec 2020**
CNN, CV, Image Classification, Dropout　　　　　　　　　　　　　*Neural Network Class Project*
- Proposed a parametric <u>Dropout</u> based on Probabilistic Sampling for Convolutional Neural Networks.
- Reduced error rates by 0.4% in CNNs on <u>image classification</u> tasks (MNIST, SVHN, CIFAR-10/100).

Promoting the Tableaux: Young Tableuax and Webs　　　　　　　　　**May 2020 - Dec 2020**
Combinatorics, Young Tableuax, Webs　　　　　*Research Assistant **in** Springer/Webs Team, Smith College*
- Investigated the shape-matching pattern during Jeu-de-taquin promotions on standard nested Young tableaux and showed its alignment with the independence of arcs during rotations on corresponding webs.
- Discovered and formalized a bijection between standard 4-row Young Tableuax and a particular group of webs in $sl4$.

Employment

Equity Trading | Goldman Sachs (China) CO. Ltd.　　　　　　　　　　**Aug 2022 - Present**
Associate Engineer　　　　　　　　　　　　　　　　　　　　　　*Beijing, China*
- *Support **domestic & QFII trading in Chinese market** with an average daily notional of 1+ billion USD.*
- Develop internal <u>trading systems</u> for equity order processing; respond to business requirements, regulatory policies, and exchange announcements including IPO registration.
- Manage <u>vendor systems</u> for trading and reconciliation, coordinating business requirements and troubleshooting. Lead systems' integration with firm-wide secret storage protocols; support data center migration as well as OS uplift.
- Hosted sharing sessions in internal <u>AI Learning Group</u> on Deep Reinforcement Learning(RL) models to technical and non-technical colleagues and discussions on AI Fairness. Designed and organized lab on RL algorithms for Tetris game.

Global Payments | ByteDance Ltd　　　　　　　　　　　　　　　　**Jan 2021 - Jul 2022**
Backend Software Engineer　　　　　　　　　　　　　　　　　　　　*Beijing, China*
- *Led a team of 3 as a **scrum master** of subscription module supporting recurrent payments of global business partners.*
- <u>Redesigned</u> the subscription service to improve system flexibility and stability based on the investigation of established subscription service providers including Apple Pay and Google Play.
- Supported Resso Music's business growth of 200%+ in 29 countries. Supported TikTok user growth program to integrate 30+ pay channels in 10+ countries in 2 months.

Payments | Google LLC   **May 2020 - Aug 2020**
Software Engineer Summer Intern   *Colorado, USA*

- Refactored code architecture and streamlined communication processes of Google Payment service with pay channels, resulting in improved code conciseness and readability.
- Implemented certificate chains for mutual SSL authentication with pay vendors; communicated for rollout.

Teaching

Programming (2018 Fall-2020 Spring): Weekly office hours; labs.
Introductory Algorithms (2020 Spring): Homework rubrics design; grading
Artificial Intelligence (2020 Fall): Weekly office hours.

Leadership

Diversity Network   **Oct 2022 - Present**
Committee Member   *Goldman Sachs China*

- LGBTQ+ Network: Collaborate with colleagues to host 4 events including Pride Month Celebrate and Awareness Week; Actively participate in sharing session planning, room decorations and event advertising.
- Women's Network: Organize 3 round-table and sharing sessions featuring senior leadership on topics of family care, women's leadership, and book reading.

Women in Computer Science   **May 2018 - Jan 2021**
Events Chair & WomenInCS Mentor   *Smith College*

- Organized coding workshops and mentorship programs. Provided 10+ local middle school girls weekly teaching sessions; mentored 2 lower-grader Smithies with Computer Science major on academic and professional development.