Shiqi Pan

(86)137-5112-7560 panshiqi.psq@gmail.com

Education

Smith College, Bachelor of Arts **Sep. 2017 – Feb 2021**

*Double Major **in** Computer Science, Mathematics and Statistics* *Northampton, MA, USA*

- Major GPA: 3.93/4.0
- Dean's List(top 10%): 2018-2019, 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 Q-Learning, Stock Prediction, AI Trading *University of Massachusetts,Amherst / Independent Research*

- Stock Prediction: Developed ARIMA, LSTM, Bidirectional-LSTM models, and Attention mechanism for stock opening price prediction (supervised by Prof. Erik G. Learned-Miller). 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).
- Portfolio Optimization: Investigated LSTM-predicted price with "Buy Low Sell High" strategy, Deep Q-Learning and Actor-Critic models for return maximization, outperforming benchmark long positions.
- FinRL(Ongoing): Implement FinRL, an open-source framework, for Portfolio Optimization with RL models.

Catching the Robber: Cops and Robber Game **Dec 2022 - Jul 2023**

Theoretical Computer Science, Complexity Analysis, Combinatorics *Independent Research*

- Robber Locating Game: 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.
- Survey: Conducted a comprehensive survey on variations of the Cops and Robber Game and prevailing approaches.

Dropout in CNN **Sep 2020 - Dec 2020**

CNN, Dropout, Image Classification *Neural Network Class Project*

- Proposed a parametric Dropout based on Probabilistic Sampling for Convolutional Neural Networks.
- Reduced error rates by 0.4% in CNNs on image classification tasks (MNIST, SVHN, CIFAR-10/100).

Promoting the Tableaux: Young Tableuax and Webs **May 2020 - Dec 2020**

Young Tableuax, Webs, Combinatorics *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*

- Develop internal trading systems for equity order processing; respond to business requirements, regulatory policies, and exchange announcements including IPO and new market integration.
- Manage vendor systems 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.

Global Payments | ByteDance Ltd **Jan 2021 - Jul 2022**

Backend Software Engineer *Beijing, China*

- Led a team of 3 as a scrum master to maintain and enhance the subscription service with 6 pay channels.
- Redesigned 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 50+ pay channels in 30+ 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 (2019 Fall): Homework & rubrics design; grading
Artificial Intelligence (2020 Spring): Weekly office hours.

Leadership

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

- Women's Network: Organize 3 round-table and sharing sessions featuring senior leadership on topics of family care, women's leadership, and book reading
- 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.

Smithies in Computer Science **May 2018 - Feb 2021**
Events Chair & WomenInCS Mentor *Smith College*

- Mentored two lower-grader Smithies with a major in Computer Science; Held consulting sessions with them to provide advice on courses and research opportunities as well as career paths.
- Reached out to corporations for sponsorship and collaborations in on-campus events such as Hackathon
- Organized and advertised coding workshops and mentor-ship programs; provided girls in local middle schools with weekly teaching sessions to encourage female participation in the field.