YUANPENG LI

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EDUCATION

Jilin University – School of Mathematics **Jilin, China**
Bachelor of Science Degree, Major in Mathematics and Applied Mathematics (GPA: 88.94/100) *Aug. 2020 – Jul. 2024*

University of California Irvine – Department of Statistics (Summer Session) **California, US**
UCInspire Program Individual Study, Mentor Prof. Annie Qu (Grade: A+, GPA: 4/4) *Jul. 2023 – Sep. 2023*

MANUSCRIPT

Transferable Proximal Policy Optimization for Multitask Reinforcement Learning **In preparation**
Yuanpeng Li, Rui Miao, Annie Qu

RESEARCH EXPERIENCE

Transferable Proximal Policy Optimization for Multitask Reinforcement Learning **California, US**
UCInspire Student, Instructors: Prof. Annie Qu, Dr. Rui Miao *Jul. 2023 – Present*

- Spearheaded the development of a multi-environment reinforcement learning model based on the PPO algorithm, tested it in "Street Fighter II" game environments, and contributed to sample efficiency and generalization in multitask reinforcement learning.
- Designed a unique tree-structure network with parameter sharing, achieving up to **50% efficiency increase** under certain conditions compared to baseline models.
- Tailored the StableBaseline3 library to suit specific algorithmic needs better, improving model efficiency and functionality.
- Polish the manuscript, and plan to present it as the first author at ICML 2024. (On-going)

Premium Rate Determination in the Corn Insurance Program in Jilin Province **Jilin, China**
Research Member, Instructor: Prof. Haiming Song *Apr. 2022 – May 2023*

- Conducted research and analysis on both domestic and international insurance determination methods.
- Innovatively proposed dividing agricultural insurance risk units by county in Jilin Province to adapt to local variations in corn revenue risks.
- Used the Linearly Weighted Moving Average (LWMA) to detrend corn yield sequences, removing influences of natural disasters and technological changes.
- Implemented K-Means Cluster Analysis and used the Copula Function for accurate corn insurance rate determination.

INTERNSHIP EXPERIENCE

Synkrotron **Xi'an, China**
Intern, AI Research Department *Dec. 2022 – Jan. 2023*

- Controlled remote Linux devices through FRP to configure network information in the automated road patrol project.
- Summarized the history of AI development in the artificial intelligence science teaching project, including algorithm development related to computer vision, history of test datasets, core tasks of computer vision, and common deep learning frameworks.
- Researched the use of computer-generated simulation datasets to enhance real-world performance in autonomous driving algorithm testing projects.

Hua Chuang Securities **Shenzhen, China**
Equity Research Intern, Industry Research Division *Jul. 2022 – Oct. 2022*

- Collected business information and data of six companies and built corresponding databases to support investment decisions.
- Utilized database data to estimate potential growth in the stock market.
- Updated institutional clients on Hua Chuang's research outputs instantly and constantly.
- Assisted team members in searching for papers and dealing with computer technical problems.

AWARDS

- Scholarship in the academic year 2022-2023 *Oct. 2023*
- School of Mathematics Basketball Competition: **3rd Place** *Dec. 2022*
- The Chinese Mathematics Competitions: **National 3rd Prize** *Dec. 2021*
- Jilin Province Mathematics Competitions: **Provincial 2nd Prize** *Dec. 2021*
- Chinese High School Mathematics League: **Provincial 3rd Prize** *Sep. 2018*
- Guangdong Province High School Biology League: **Provincial 3rd Prize** *Sep. 2018*

SKILLS

- **Software Skills:** Wolfram Mathematica, Microsoft Office, Photoshop, Premiere Pro
- **Programming Language Skills:** Python, C Language, Matlab, LaTeX
- **Machine Learning Frameworks Skills:** Scikit-learn, Pytorch, Pandas, StableBaseline3, OpenAI Gym
- **Miscellaneous Skills:** Linux Server Administration, Git, Docker, VMware EXSI, OpenWrt, Network Administration

EXTRA-CURRICULAR ACTIVITIES

School of Mathematics **Jilin, China**

Peer Mentor *Sep. 2020 – Present*

- Provided tailored assistance to non-math major students and lower-grade students in understanding complex mathematical concepts and theories.
- Offered guidance on effective study techniques and problem-solving strategies to enhance students' learning in mathematics.
- Guided lower-grade students in mathematics through personalized advice, aiding them in clarifying their interests and selecting appropriate mathematical fields for further study.

Sunshine Support Center **Jilin, China**

Librarian *Mar. 2021 – Jun. 2022*

- Managed the library's book inventory, ensuring efficient organization and easy accessibility for readers.
- Assisted readers with borrowing and returning books, streamlining the lending process.
- Guided readers in reserving study spaces within the library, enhancing their experience and utilization of library resources.
- Assisted in retrieving books from high shelves or hard-to-reach places, ensuring a helpful and accommodating environment.

ADDITIONAL INFORMATION

Online Courses *Jan. 2023*

- CS61A: Structure and Interpretation of Computer Programs (UC Berkeley)
- Coursera Certificate: Machine Learning (Stanford University)
- Coursera Certificate: Supervised Machine Learning: Regression and Classification (Stanford University)
- Coursera Certificate: Advanced Learning Algorithms (Stanford University)

MIT xPro Project *Mar. 2022*

Machine Learning, Modeling, and Simulation Principles

- Graded Assignment Average: 88%, Case study: 100%
- Main Coursework: Modeling and Simulation Fundamentals, Spatial Modeling, Optimization, and Data-Driven Modeling, From Optimization to Machine Learning, Probabilistic Methods, Case Studies