Peiru (Jenny) Xu (She/Her/Hers)

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EDUCATION

University of California, Berkeley Berkeley, CA

- Bachelor of Arts, Applied Mathematics & Philosophy (**GPA 3.9**) Aug. 2019 – May. 2023

INTERNSHIP

ABio-X Holdings, Remote/Boston, US Manager: Prof. Huazheng Wang, Dr. Wentao Chen

Machine learning intern July. 2022 – Current

- Built and developed novel reinforcement learning algorithms to evaluate fitness of protein sequences and search for optimal new protein designs, reaching 2-fold faster convergence over baseline algorithms
- Proposed Neural Directed Evolution with TAPE embedding inputs and utilized linear bandit algorithms (LinUCB, Thompson sampling) for sequential optimization, achieving substantial improvement of performance

Deloitte, Shanghai, China Manager: Mingchao Xin

Data analysis intern June. 2021 – July. 2021

- Conducted financial analysis and fraud detection for clients using data analysis and machine learning with higher efficiency and accuracy compared to traditional methods
- SQL queries implementation on database to generate insights and suggestions for clients on finance conditions
- Client presentation using Tableau to visualize analysis results

PUBLICATION

- **P. Xu.**, J. Hong., H. Wang., M. Wang., "Neural Directed Evolution for Protein Sequence Optimization", in preparation
- Y. Zhou., **P. Xu.**, G. Hooker., "Generic Model Distillation: Statistical Stability in Bayesian and Tree Model", in preparation

PROJECTS AND RESEARCH

Student Researcher, Department of Statistics, UC Berkeley Advisor: Prof. Giles Hooker

Generic Model Distillation: Statistical Stability in Bayesian and Tree Model May. 2022 – Current

- Explored the stability and interpretability of learned explanations for black-box models via generic distillation
- Developed statistical theories based on central limit theorem for determining the sample size required to guarantee stability of the distilled student model
- Conducted experiments on both simulated and real-world data to demonstrate effectiveness of the proposed generic distillation method, including tree models, falling rule list and symbolic regressions

Student Researcher, US Air Force Research Laboratory Advisor: Dr. Alvaro Velasquez

Automaton Distillation for Non-Markovian Knowledge Transfer in Reinforcement Learning Aug. 2021 – Dec. 2021

- Proposed automaton distillation in transfer learning to mitigate issues with traditional methods in knowledge transfer as policy distillation
- Introduced a new and effective method of non-Markovian knowledge transfer that distills knowledge from teacher automaton to student DQN
- Experimented on a blind-craftsman environment and achieved better and more effective performance

EXPERIENCE AND SKILLS

- **Data Analysis:** Sufficient knowledge and experience in data analysis, including EDA and data visualization Proficiency in Python, R, MATLAB, SQL, skillful usages of numpy, scipy, pandas, sklearn, pytorch, tensorflow
- **Machine Learning:** Coursework and projects on machine learning, including linear/logistic regression, PCA, decision trees, deep learning. Research projects on model distillation and reinforcement learning

LEADERSHIP AND AWARD

- Member of MUSA (Mathematics Undergraduate Student Association) and Women in Math
- INTEL ISEF 2019: Joined team China in INTEL ISEF 2019 and awarded with finalist
- **DEAN'S HONORS LIST** - College of Letter & Science 2019|2020|2021|2022
- HONORS TO DATE (Distinction in General Scholarship) 2019|2020|2021|2022