Jundi Liu

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Objective

I am looking for **internship** positions. My **research interests** lie in *machine learning*, *data mining*, *optimization* and *statistical modeling*. Specifically, I am interested in **applied machine learning** and **optimization** in *large scale and complex dataset*.

Computer Skills

Programming Languages: Python, R, Java, C/C++, Javascript, Shell, Html, SQL
Software & Tools: MySQL, Shiny, Flask/Django, Hadoop, Git, Azure Service Fabric, CUDA
Operating Systems: Unix/Linux, Windows, MacOS

Education

University of Washington, Seattle, WA
Ph.D., Industrial and Systems Engineering *Jun '2021 (Expected)*
Advisers: Prof. Ashis G. Banerjee and Prof. Linda Ng Boyle
GPA: 3.8/4.0

Shanghai Jiao Tong University, Shanghai, China
B.S., Computer Science and Engineering *2012-2016*
GPA: 3.7/4.0

Publications

- **J. Liu**, S. Hwang, W. Yund, L. N. Boyle, and A. G. Banerjee. Predicting Purchase Orders Delivery Times using Regression Models with Dimension Reduction. In *Proceedings of ASME Computers & Information in Engineering Conference (CIE)*, Quebec City, QC, Canada, 2018, To appear.
- **J. Liu**, L. N. Boyle, and A. G. Banerjee. Predicting Interstate Motor Carrier Crash Rate Level using Classification Models. Submitted to *Accident Analysis & Prevention*, under revision.
- N. Rahimi, **J. Liu**, A. Shishkarev, I. Buzytsky, and A. G. Banerjee. Auction Bidding Methods for Multi-Agent Consensus Optimization in Supply-Demand Networks. Submitted to *IEEE Robotics and Automation Letters (RA-L)*, under review.

Coursework

- **Statistics**: Applied Regression, Introduction to Mathematical Statistics
- **Operations Research**: Linear Optimization Models in Engineering, Stochastic Processes in Engineering, Engineering Simulation, Markov Decision Process
- **Data analysis**: Data Analysis in Engineering, Mining of Massive Datasets, Computational Method in Data Analytics
- **Machine Learning**: Introduction to Machine Learning, Statistical Learning, Artificial Intelligence
- **Computer Science**: Database System, Distributed System, Computational Theory, Algorithm, Linux Kernel, Compiler, Operating System, Computer Network, Computer Architecture

Research Experience

- **Graduate Research Assistant**: Scale-independent Multimodal Automated Real Time Systems (SMARTS) Lab, University of Washington, Seattle, WA
  - Applied advanced machine learning algorithms (Random Forest and Quantile Regression Forest) in large scale manufacturing dataset from Original Equipment Manufacturers (OEMs) and Small and Medium-scale Enterprises (SMEs) including categorical variables with large number of levels.
  - Developed an analysis method using Principle Component Analysis with Varimax Rotation to extract the most influential levels and substantially reduce the number of levels in categorical variables.
  - Implemented the parallel training method in advanced machine learning models to ensure algorithm efficiency in personal laptop.

- Developed visibility tool including MySQL database as the data storage and implement the whole analysis framework in the backend server using R shiny to facilitate the supply chain decision making .
- Helped with implementing Auction Bidding method for Multi-Agent Consensus Optimization in Supply-Demand Networks.
- Implemented the Multi-Agent Consensus Optimization Algorithm in Azure Fabric Service to leverage better performance in real-time supply and demand changes on MacOS.

- **Graduate Research Assistant**: Human Factors and Statistical Modeling Lab, University of Washington, Seattle, WA
  - Developed a crash risk and safety measurement method based on supervised learning models (Decision Tree, Support Vector Machine, and Artificial Neural Network) using historical crash data.
  - Implemented variable selection methods including Multiple Factor Analysis (MFA), Garson's Algorithm in crash data.
  - Conduct structured usability studies of visibility dashboards for supply chain decision making and analyzed the results using statistical methods.
- **Summer Intern**: Algorithms-Agents-Data Interface on Internet, Market, and Social Networks Lab, Shanghai Jiao Tong University, China
  - Participated in an effort to apply an optimal implementation of linear programming.
  - Applied a parallel implementation of the interior point method.
  - Analyzed weaknesses of the ellipsoid method and interior point method.
- **Undergraduate Research Assistant**: Visual Media and Data Management Laboratory, Shanghai Jiao Tong University, China
  - Assisted in research on rolling shutter effect compensation using global wave analysis
  - Conducted analysis on the impact of the pixel interference method.
  - Developed a position changing method and differential analysis method.
  - Assisted a second project involving multi-picture displays and deblur using GPU acceleration. Achieved GPU acceleration on the Simple Linear Iterative Clustering (SLIC) super-pixel segmentation method and fuzzy kernel calculation. Also improved the estimation of the fuzzy kernel.

Activities & Awards

- **2nd Class Award**, Smart City & IoT Innovation and Entrepreneurship Competition
- Co-founder of the O2O cloth washing company, Go Washing, which is a startup company located in Shanghai Jiao Tong University. After launching, we have achieved over 2,000 orders per month. http://www.gowashing.com/
- **Excellent Volunteer Leader**, Shanghai Jiao Tong University. I was the leader of Human Resources Department of SJTU Volunteer Association and organized many big volunteer event in Shanghai and SJTU.