Weizhi LIU

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Education

National University of Singapore | Department of Industrial Systems Engineering and Management

Singapore

SIMULATION OPTIMIZATION, PH.D. CANDIDATE

2014.08-Present

- Research Topic：Optimal Computing Budget Allocation, Multi-objective Optimization via Simulation, Discrete Event Simulation.

Nanjing University | School of Management and Engineering

Nanjing, China

INDUSTRIAL ENGINEERING, B.ENG. ; FINANCIAL ENGINEERING, B.EC.

2010.09-2014.06

- Core Modules: Operations Research, Operations Management, Supply Chain Management, Quality and Reliability Engineering, Engineering Economics, Management Information System; Principles of Economics, Financial Economics, Financial Engineering, Corporate Finance, Financial Risk Management, Modeling and Simulation of Financial Markets, Structured Finance, Fixed Income Securities, Econometrics, Financial Markets Microstructure.

Honors & Awards

2017.04 **Gold Medal**, WorldQuant Global Alpha Building Competition
2017.03 **Level 5 (Finalist)**, Google FooBar Coding Challenge
2013.02 **INFORMS Paper Award (0.05%)**, The Mathematical Contest in Modeling
2013.02 **Outstanding Winner (0.2%)**, The Mathematical Contest in Modeling
2011/2012 **Outstanding Volunteer**, The 4th, 5th "Caring for China" - the Google China Social Innovation Cup

Experience

ADVANCE.AI

Singapore

DATA SCIENTIST INTERN

2017.07-2017.10

- Proposed two anomalous community detection algorithms for GoJek (an Indonesian company) to identify fraudulent drivers/customers with abnormal topological structures in the co-occurence graph; Deployed Tableau/Gephi dashboard to visualize the fraudulent drivers/customers.
- Conducted feature engineering and applied isolation forest, ensemble supervised learning to provide fraudulent and abnormal scores for the given email addresses.

PyPRS

Singapore

DESIGNER & DEVELOPER

2016.03-2017.05

- Proposed Partition-based Random Search (PRS) algorithm in Python to solve multi-objective optimization via simulation.
- Designed the architecture of the PRS algorithm, and the components and test problems of the algorithm are encapsulated based on the object-oriented paradigm.
- Adopted SWIG to integrate the core code written in C ++ with the Python main program to speed up the program's running efficiency.
- Visualized the process of algorithm for easy debugging and in-depth understanding.

Douban Crawler

Singapore

DESIGNER & DEVELOPER

2015.01-2015.04

- Developed a web crawler coded in Python to retrieve information from Douban Books and Douban Movies based on doulist and tags.

Graduation Website for School of Engineering and Management, NJU

Nanjing, China

DESIGNER & DEVELOPER

2014.05-2014.06

- Designed the graduation website for our school based on Django, Bootstrap, and jQuery, and deployed the site to SinaAppEngine.

BiblioPy

Nanjing, China

DEVELOPER

2014.04-2014.05

- Proposed an algorithm in Python to discover the knowledge graph for a research field by the co-occurence and clustering methods.
- Implemented TF-IDF and TextRank to conduct the natural language processing analysis of the literature data.
- Developed automatic report generation tool via LaTeX and the visualization tool for Gephi.

Credit Scoring using Random Forests

Nanjing, China

MODELER & DEVELOPER

2013.11-2013.12

- Several machine learning algorithms including the logistic regression, classification tree methods, and random forests are implemented based on programming language R to score the credit of the borrower based on the data from UCI (Machine Learning Repository) and Kaggle. With the help of credit scoring, the business bank can alleviate the possibility of bad debt.

Extracurricular Activity

Google Camp, Nanjing University

Nanjing, China

PRESIDENT

2011.09-2012.09

- Organized and hosted the seminar of the fifth "Caring for China" - the Google China Social Innovation Cup in Nanjing University.
- Invited technical experts to share their developing experience.
- Organized community members to visit Google Shanghai headquarters.

Student Research Training Program Club, Nanjing University

Nanjing, China

VICE PRESIDENT

2011.07-2012.09

- Organized and hosted the second and the third session of Nanjing University Innovation and Entrepreneurship Summit.
- Organized a series of academic seminars, the visit to Certusnet, Nanjing, and the 2011 Christmas Party of our club.

Publications

[1] Weizhi Liu*, Siyang Gao, and Loo Hay Lee. A multi-objective perspective on robust ranking and selection. In *Proceedings of the 2017 Winter Simulation Conference*. IEEE, 2017.

[2] Weizhi Liu*, Siyang Gao, and Loo Hay Lee. A partition-based random search for multi-objective optimization via simulation. Under Review, 2017.

[3] Juxin Li, Weizhi Liu*, Giulia Pedrielli, Loo Hay Lee, and Ek Peng Chew. Optimal computing budget allocation to select the non-dominated systems - a large deviations perspective. Accepted by IEEE Transactions on Automatic Control, 2017.

[4] Weizhi Liu, Juan Li*, Di Zhang, and Wei Chen. 公平感对供应链成员定价决策影响的研究 (fairness's effect on the pricing decisions of the supply chain). *Journal of Management Sciences in China (管理科学学报)*, 20(7):115–126, 2017.

[5] Cenying Yang, Wei Chen, and Weizhi Liu*. 滴水尽其用 (make wise use of every drop). *Mathematical Modeling and Its Applications (数学建模及其应用)*, 2(5–6):75–89, 2013.

[6] Cheng Ji*, Weizhi Liu, and Huiwen Chen. Verification of option parity relations in domestic warrants market of china. In *Proceedings of 2013 3rd International Conference on Social Sciences and Society(ICSSS 2013)*, 2013.

[7] Cheng Ji*, Mengyi Niu, Weizhi Liu, and Jinyang Han. 大学城社区共同配送中心的配置模型 (joint distribution center model in university community). *China Journal of Commerce (中国商贸)*, 11:091, 2013.