Lingjun Meng

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Education

Imperial College London (Business School) Sep. 2023 – Aug. 2024 (Expected)
MRes in Analytics & Operations Advisor: *Prof. Wolfram Wiesemann, Prof. Ryan Cory-Wright*
Research interest: Stochastic and robust optimization and their applications in business analytics
Courses: optimization, machine learning for analytics, stochastic process, microeconomics, decision under certainty, optimization & decision models, logistics & supply chain management

Swiss Federal Institute of Technology in Lausanne (EPFL) Sep. 2021 – Aug. 2023
MSc in Mechanical Engineering GPA: 5.51/6.0 (equivalent to UK distinction)
Courses: convex optimization, machine learning, math of data, markov chain, applied probability & stochastic process, model predictive control, dynamical system theory, system identification, legged robot, principle of finance

Xi'an Jiaotong University (XJTU) Sep. 2016 – June 2020
B. E. in Energy and Power Engineering GPA: 92.65/100 (Ranking: 2/303)
Courses: calculus, linear algebra, probability & statistics, complex analysis, general physics, electrical engineering basics, fluid dynamics, thermodynamics, mechanics

University of Minnesota (UMN) June 2018 – Aug. 2018
Summer Exchange GPA: 3.89/4.0
Courses: heat transfer, system dynamics & control Activities: rocket & balloon practical

Publication

L. Meng, J. Coldenhoff, P. Kendrick, T. Stojkovic, A. Harper, K. Ratmanski, M. Cernak. "On real-time multi-stage speech enhancement systems". *Accepted to ICASSP 2024* [arXiv]

Selected Honors & Awards

- EPFL Excellence Fellowship, Switzerland (top 3%, full scholarship of EPFL master's program)
- National Scholarship of China (top 1%, awarded by the Ministry of Education of China)
- National First Prize in Energy Saving and Emission Reduction Contest of China (top 1% of contestants)
- Outstanding Graduate of Xi'an Jiaotong University, China (top 10%)

Research experience

Efficient approximation scheme for distributionally robust optimization problems Sep. 2023 – Now
Research Assistant, Advisor: *Prof. Wolfram Wiesemann, Prof. Ryan Cory-Wright*
Imperial College Business School, United Kingdom

- Design an efficient and tractable approximation scheme for DRO problems that leverages only two extreme solutions, the solution of nominal stochastic problem and high ambiguity problem.
- Provide a rigorous error bound for the approximation scheme and study the approach under various practical applications like portfolio selection, facility location and energy system operation.

Online bandit algorithms based on distributionally robust optimization Feb. 2022 – Oct. 2022
Research Assistant, Advisor: *Prof. Daniel Kuhn*
Risk Analytics and Optimization Chair, EPFL, Switzerland

- Develop bandit algorithms based on DRO for online decision-making under uncertainty. Reformulate the distributionally robust bandit algorithms to tractable convex program.
- Derive non-asymptotic regret upper bounds for the policies based on concentration theorems and mathematical analysis techniques, which give a theoretical convergence guarantee for the developed DRO bandit algorithms.

Bayesian active learning for robot learning July 2022 – Oct. 2022

Summer Research Intern, Contract, Advisor: *Prof. Aude Billard*

Learning Algorithms and Systems Laboratory, EPFL, Switzerland

- Learn a safety value function for robots from online user demonstrations using Gaussian process regression.
- Tackle the concept drift challenge through adaptive learning and uncertainty sampling, which significantly reduces the sample collection cost demonstrated through synthetic experiments.

Understanding test-time adaptation through synthetic simulation Sep. 2021 – Jan. 2022

Research Assistant, Advisor: *Prof. Alexandre Alahi*

Lab of Visual Intelligence for Transportation, EPFL, Switzerland [Project Repo]

- Implement several test-time adaptation methods (TTT, TTT++, TENT, SHOT) for improving the machine learning robustness to distribution shifts.
- Design synthetic experiments to control the domain shifts. Compare and analyze the mechanism of different methods under various domain shifts.

Thermal performance prediction for geothermal systems Nov. 2020 – June 2021

Research Assistant, Advisor: *Prof. Yaling He*

Lab of Energy Conversion and Storage, XJTU, China

- Propose a method that can predict the comprehensive performance of geothermal heat exchanger and thermal storage systems considering heat transfer, flow resistance, and economical cost.
- Based on parameter study, propose some improvement strategies which have been applied in production.

Industrial experience

Two-stage learning for real-time speech signal separation and enhancement Feb. 2023 – Aug. 2023

Research Intern, Advisor: *Dr. Milos Cernak*

CTO office, Logitech Europe S.A., Switzerland

- Enhance the speech quality corrupted by additive noise and nonlinear distortions based on two-stage learning.
- Propose a lightweight two-stage network which consists of a Mel-scale magnitude masking model in the first stage and a complex spectrum mapping model in the second stage. The proposed two-stage network with optimal training scheme could achieve a similar performance to a four-times larger open-source model.

Air conditioning design training June 2019 – Aug. 2019

Engineering Intern, LG Electronics, South Korea

- Learn the basics of air conditioning and fundamentals of LG B2B, R&D, process and NPI process.
- Design the indoor, outdoor units and piping systems of air conditioners of an office building with LG air conditioning test system software. Simulate the air velocity and temperature distribution of air conditioner outdoor units with Ansys Fluent.

Patent & Copyright

[1] Performance analysis and design software for geothermal heat exchanger. Software Copyright. License: 2020SR0337174

[2] A Design Method of Non-disturbing Geothermal Heat Exchanger Considering Heat Exchange, Resistance and Economic Factors. Patent.

[3] Heat pipe-PCM coupled power-consumption-free thermal management module with temperature-controlled thermal switch. Patent.

Skills

Programming	Python, Matlab, C++, HTML, Julia, R	**Language**	English (C1), Chinese (native)
Tool	Tensorflow, Pytorch, Sklearn, Matplotlib, Pandas, NumPy, Librosa, Simulink, Gurobi, CVXPY, LaTex, Office, Linux, Git, Ansys Fluent, Solidworks		