Wenrui Yuan | Curriculum Vitae

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EDUCATION

University of Melbourne   **Melbourne, VIC, Australia**
MSc in Mathematics, Supervisor: Dr. Alysson Costa   *Aug 2020 - Dec 2022*
Thesis: *Deep Reinforcement Learning For Assembly Line Balancing Problems*

University of Washington   **Seattle, WA, United States**
B.A. in Mathematics   *Aug 2015 - Jun 2019*

SKILLS

Languages	Chinese, English, Japanese
Programming	Python (Tensorflow/PyTorch, Gurobi/Cplex), Matlab, R, Julia, MySQL
Systems	Windows, OS X, Linux Server
Software	LaTeX, MS Office

RESEARCH EXPERIENCE

Decomposition-based mixed integer programming model for fire prevention
Research assistant   *Oct 2022 - Mar 2023*
- Initial Gurobi implementation for result reproduction in selected papers.
- Designed iterative procedure using the cutting plane method.

Pricing optimization for local goods trade
Remote research assistant   *Jun 2022 - Jan 2023*
- Data-cleaning for clustering(aggregation) and sale data characterization
- Developed an integer programming model to maximize profit considering transportation costs and inventory

Machine learning for operations research
Master thesis   *Mar 2021 - May 2022*
- Developed a supervised learning based generative solution scheme for for the simple assembly line balancing problem (SALBP)
- Revised model with the sequential decision theory, reformulated with Markov decision process
- Implemented a constructive heuristic using deep reinforcement learning with graph embedding and action masking.

WORK EXPERIENCE

Great Wall Securities Co.,Ltd   **Shenzhen, China**
Quantitative Analyst Intern   *Dec 2023 - Mar 2024*
- Develop deep learning based model for trading data projection
- Maintain data and collect daily report for meetings
- Research & report on new alpha factor and conduct performance evalutaion

Tencent   **Shenzhen, China**
Production management internship   *Oct 2019 - Dec 2019*
- Daily report on retrieved data with brief analysis.
- User profile analysis, with detailed report studying user behavior.
- Proposed preliminary procedure for coarse analysis on user behavior and coded simple SQL pipeline for general query extraction.

China Telecom Co. Ltd.   **Shenzhen, China**
Data-mining internship   *Jun 2019 - Oct 2019*
- Feature engineering on large-scale datasets using PL/SQL.
- Improved attrition rate prediction accuracy by an average of **3.1**% based on engineered features on a SPSS C5.0 model.

AWARD

Mathematics and Statistics Masters Scholarships *Jun 2021*

Melbourne Welcome Grant *Feb 2022*

PROJECTS

Course Project - Frequency analysis & Signal processing *Jan 2019*
- Explored filtering methods on signal de-noising and spectrum analysis in extracting frequency components.
- Restored selected music excerpts to original scores by extracting central frequencies and mapping them to music notes.

Course Project - Motion extraction with principle component analysis *Feb 2019*
- Developed a SVD-based PCA algorithm for extract ing horizontal and vertical displacement of moving objects under.
- Studied the robustness of the SVD-based model by comparing results with other models.

Course Project - Video background subtraction *Mar 2019*
- Developed a SVD-based dynamic mode decomposition algorithm to subtract video backgrounds.
- Performed low-rank restoration on selected videos using dimensionality reduction and examined the robustness with respect to camera movement.

Course Project - Complex Systems *Nov 2020*
- Designed experiments for simple sandpile models to study the self organized criticality.
- Implemented abelian, non-abelian and stochastic model to study their relationships with dissipative models.

REFERENCES

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