

Ruoyan Kong

PhD student in Computer Science (User Interface Design, Data Analytics, Recommender Systems)

Personal Info

Phone

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E-mail

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website

www.ruoyankong.com

Skills

Python



Java



SQL



A/B Test Design



JavaScript



Behavioral Economics



Numerical Methods for PDE



Courses

2018-09 - present

Advanced Algorithms and Data Structure

2018-09 - present

User Interface Design

2015-02 - 2015-06

Operating System

2015-02 - 2015-06

Database

2015-02 - 2015-06

Computer Graphics

2014-09 - 2014-12

Compiler

First-year Computer Science PhD student in Grouplens Lab, University of Minnesota, Advisor: Prof. Joseph Konstan, Ongoing Project: How to design a profitable recommender system via Q-Learning.

Experience

2018-09 -

present

Research Assistant

Department of Computer Science, University of Minnesota

- Designed comment-oriented / profit-oriented recommender system through Q-learning model.

2015-01 -

2015-06

Research Assistant

Department of Computer Science, University of Science and Technology of China

- Explore Nash equilibrium to simulate the selections of members in a group.
- Designed a matrix factorization method to calculate users' performance.
- The Nash approach had a Hit Rate 10% with a Harmonic(a fairness metric) 1.09 while AVG method only had a Hit Rate 8% with a Harmonic 1.01.
- Published as Group Preference Aggregation: A Nash Equilibrium Approach, In *Proceedings of the 16th IEEE International Conference on Data Mining (ICDM'16), Barcelona, Spain, 2016, 679-688.*

2016-12 -

2017-09

Quantitative Algorithmic Developer

Derivatives-China

- Designed an algorithm to estimate HMM by the Baum-Welch algorithm segmentally and combined the estimations by Adaboost to suit changeable economy environments and let HMM's hidden states make sense (e.g. the daily directions of index futures).
- Designed a parallel-serial optimization method to get the approximate global solution of Baum-Welch algorithm.
- Realized the code in database interface, model prediction, model back-testing, and daily automatic generation of reports.
- Brought a consistent 10.6% YTD Return with a max drawdown 3.6% and a monthly sharpe 2.1 for the company.
- Python & Theano & Pymc

2015-03 -

2015-06

Quantitative Algorithmic Developer

Guangzhou Securities

- Built a model-based reinforcement problem to describe the states, actions, profits in the order execution problem.
- Applied backward induction algorithm to solve this reinforcement problem.
- Derived the optimal strategy for the firm to execute orders to minimize impact cost.
- Python & Theano

Education

2018-09 -

present

University of Minnesota, Computer Science, PhD student

- Research Area: Recommender Systems, User Interface Design, Social Computing
- Advisor: Prof. Joseph Konstan
- Project: A Profit-oriented Recommender System via a Q-Learning Algorithm

2016-09 -

2018-06

Tsinghua University, Finance, Master

- Master's Thesis: A Government Funding Allocation Mechanism Based on A Game On Credibility
- Advisor: Prof. Michael Powers

2012-09 -

2016-06

University of Science and Technology of China, Major: Math, Minor: Computer Science, Bachelor

- GPA 3.92/4.30, Major GPA 4.04/4.30
- Rank 1/22 in Track, 7/120 in Department
- Graduation Thesis: A Model of Incentives in Repeated Crowdsourcing Systems
- Advisor: Prof. Qi Liu