

RUOYAN KONG's CV

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EDUCATION

GroupLens Lab, Department of Computer Science, University of Minnesota

Minneapolis, US

- Ph.D. Student in Computer Science
— GPA 3.74, Advisor: Prof. Joseph Konstan
— Project: Towards an Effective Organization-Wide Email System

09/2018 –

School of Economics and Management, Tsinghua University

Beijing, China

- Master of Science in Finance
— GPA 3.5, Advisor: Prof. Michael Powers
— Master's Thesis: A Government Funding Allocation Mechanism Based on A Game On Credibility

09/2016 - 06/2018

University of Science and Technology of China(USTC)

Hefei, China

- Bachelor of Science in Mathematics (Information and Computational Science)
— GPA 3.92, Advisor: Prof. Qi Liu
— Graduation Thesis: A Model of Incentives in Repeated Crowdsourcing Systems

09/2012 - 06/2016

RESEARCH EXPERIENCE

Towards an Effective Organization-Wide Email System

09/2018-Ongoing

Graduate Research

GroupLens Lab, University of Minnesota

Supervisor: Prof. Joseph Konstan

- In organizations, ineffective communication or email overload could result in substantial wasted employee time and lack of awareness or compliance.
- We delved into the bulk email distributing mechanisms of the communicators, the reading behaviors of recipients, and the bulk emails' values from communicators and recipients' points of view with mixed methods.
- We found significant disorder and ineffectiveness resulting in low read rates and wasted employee time. A major factor underlying these results is the disparate views of different stakeholders on the use of email channels.

A Government Funding Allocation Mechanism Based on A Game On Credibility

01/2018-06/2018

Graduate Research

School of Economics and Management, Tsinghua University

Supervisor: Prof. Michael Powers(SEM)

- Built a dynamic fund-allocation mechanism based on algorithmic game theory, optimal mechanism design, and multi-armed bandit algorithms, and a government credibility index based on a UCB-style indicator.
- Proved that under this mechanism, the game on the credibility indicator between all the local governments will have an $O(\ln T/T)$ Bayesian Nash Equilibrium.

A Risk Finance Paradigm for Dependent Catastrophe Losses with Pareto Severities

09/2017-12/2017

Graduate Research

School of Economics and Management, Tsinghua University

Supervisor: Prof. Michael Powers

- Modeled catastrophe losses' portfolios as a class of dependent Pareto severity variables with Gumbel copulas.
- Proposed a conservative risk finance paradigm that can be used to prepare the firm for worst-case scenarios with regard to (1) firm's intrinsic sensitivity, (2) heaviness of severity's tail and (3) dependence between risks.

Group Recommendation: An Approach Based on Nash Equilibrium (ICDM'16)

01/2015-06/2015

Undergraduate Research Department of Data Mining, National Engineering Laboratory for Language Information Processing

Supervisor: Prof. Qi Liu

- Proposed to build a Nash game to simulate the selections of members in a group to capture the group members' interactions and to ensure fairness.
- 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.

Effect of Intramuscular Fat on Skeletal Muscle Mechanics

Undergraduate Summer Research Program

Supervisor: Prof. Nilima Nigam

07/2015-09/2015

Simon Fraser University, CA

- Implemented C++ code of different types of skeletal muscle with finite element tool dealii.

INTERNSHIP

Batch-Mode Active Learning for Less Labeling

05/2020-08/2020

Supervisor: Dr. Zhanlong, Qiu

Applied Scientist Intern, Amazon, Seattle

- Developed a Deep Imitation Batch-Mode Active Learning Model (DBAL) to control the number of human labels needed while maintaining model's performance.

Social Intelligence and Rank Optimization

06/2019-08/2019

Supervisor: Mr. Allan Luk

Data Science Intern, Seagate, MN

- Built NLP trend detection models (DLNP Topic Extraction + W2V + tsne topic clustering) to catch market feedback, customer reviews, industry opportunities (Python).
- Deployed SEO, Learning to Rank models (softmax LR + DNN) to improve product searching ranks, reach a 90 % ordered-pair accuracy of top5 products searching results (Python).

A Half-supervised Hidden Markov Model to Forecast Index Futures

12/2016-04/2017

Supervisor: Mr. You Zhang

Quantitative Developer Intern, Derivatives-China

- Designed a semi-supervised learning algorithm (SHMM) to fit HMM segmentally based on Adaboost; SHMM could react to changeable marketing and have explainable hidden states (e.g. directions of index futures).
- Designed a parallel-serial optimization method to get the approximate global solution of Balm-Welch algorithm.
- Realized the Python code including model prediction, model back-testing, and daily reports and warning.
- Brought a consistent 10.6% Year To Date (YTD) Return with a max drawdown 3.6% for the company.

Learn Order Execution Problem by Reinforcement Learning

03/2016-06/2016

Supervisor: Mr. Siwei Chen

Quantitative Researcher Intern, Guangzhou Securities

- Deployed a reinforcement learning model to derive the optimal strategy to execute large orders to minimize impact cost for the company; brought a 5% save in transaction cost.

TEACHING EXPERIENCE

Advanced Programming Principles: Teaching Assistant in UMN CSCI 2041

2019 Spring

User Interface Design: Teaching Assistant in UMN CSCI 5115

2020 Fall

SKILLS

Computer Speciality Python, Java, Sql, Kafka, Mongodb, Druid, Hive/Hadoop, Angular

Finance Speciality CFA Level I

AWARDS AND HONORS

- National Scholarship, National Ministry of Education of China, top 1% 2013
- First Prize Scholarship, Tsinghua University, top 3% in the Department of Finance 2017

PUBLICATIONS

- Ruoyan Kong, Haiyi Zhu, and Joseph Konstan. 2020. Learning to Ignore: A Study of Organization-Wide Email Effectiveness. under review
- Ruoyan Kong, Haiyi Zhu, and Joseph Konstan. 2020. Organizational Bulk Email Systems: Their Role and Performance in Remote Work. NFW 2020.
- Hongke Zhao, Qi Liu, Yong Ge, Ruoyan Kong, Enhong Chen, Group Preference Aggregation: A Nash Equilibrium Approach, In Proceedings of the 16th IEEE International Conference on Data Mining (ICDM'16), 679-688