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 09/2018 –
  - — GPA 3.76, Advisor: Prof. Joseph Konstan
  - — Project: Towards an Effective Organization-Wide Email System

School of Economics and Management, Tsinghua University Beijing, China

- Master of Science in Finance 09/2016 - 06/2018
  - — GPA 3.5, Advisor: Prof. Michael Powers
  - — Master's Thesis: A Government Funding Allocation Mechanism Based on A Game On Credibility

University of Science and Technology of China(USTC) Hefei, China

- Bachelor of Science in Mathematics (Information and Computational Science) 09/2012 - 06/2016
- Minor subject: Computer Science
  - — GPA 3.92, Advisor: Prof. Qi Liu
  - — Graduation Thesis: A Model of Incentives in Repeated Crowdsourcing Systems

Research Experience

Towards an Effective Organization-Wide Email System *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(lnT/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 built 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 *07/2015-09/2015*
Undergraduate Summer Research Program *Simon Fraser University, CA*
Supervisor: Prof. Nilima Nigam

- 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, Druid, Hive/Hadoop, Angular, CUDA, Blender
Finance Speciality CFA Level I

Awards and Honors

- Grand Prize @ Wells Fargo Campus Analytics Challenge 2020
- 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, Chuankai Zhang, Jin Kang, and Joseph Konstan. COVID-19 as Reflected in University President Bulk Email. under review
- 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