

RUOYAN KONG'S CV

Department of Computer Science, University of Minnesota

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EDUCATION

Grouplens Lab, Department of Computer Science, University of Minnesota

Minneapolis, US

- Ph.D. Student in Computer Science
— GPA 3.86, 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)
• Minor subject: Computer Science
— GPA 3.92, Advisor: Prof. Qi Liu
— Graduation Thesis: A Model of Incentives in Repeated Crowdsourcing Systems

09/2012 - 06/2016

AWARDS AND HONORS

- National Scholarship, National Ministry of Education of China, top 1% 2013
- Gold Award of University's Excellent Students, USTC, top 3% 2014
- Outstanding Student Research, USTC, top 3% out of undergraduates in USTC 2015
- Huangyu Scholarship, USTC, top 3% in the School of Mathematics 2015
- Outstanding Graduates, USTC 2016
- First Prize Scholarship, Tsinghua University, top 3% in the Department of Finance 2017

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 study the reading behavior of employees and interviewed representative organizational senders to understand current practice, the effectiveness of the communication channels, and factors that lead to ineffective email communication.
- 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 the techniques of algorithmic game theory, optimal mechanism design, and multi-armed bandit algorithms.
- Built 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, where all the local governments will not over-report their demands at this 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.
- Designed a parallel-serial numerical algorithm to get Fourier-analytic risks for levy-stable variables.
- Proposed a conservative risk finance paradigm that can be used to prepare the firm for worst-case scenarios with regard to (1) the firm's intrinsic sensitivity to risk, (2) the heaviness of the severity's tail and (3) the dependence between the risks.

Group Recommendation: An Approach Based on Nash Equilibrium

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.
- Awarded with *Outstanding Students Research* of USTC in 2015

Effect of Intramuscular Fat on Skeletal Muscle Mechanics

07/2015-09/2015

Undergraduate Summer Research Program

Simon Fraser University(SFU)

Supervisor: Prof. Nilima Nigam

- Realized the Cpp code of different types of skeletal muscle by finite element tool dealii.
- Analyzed the mechanics of different types of skeletal muscle.

INTERNSHIP

Social Intelligence and Rank Optimization

06/2019-08/2019

Supervisor: Mr. Allan Luk

Seagate, MN

- Build NLP, trend detection models (DLNP Topic Extraction + W2V + tsne topic clustering) to catch market feedback, customer reviews, industry opportunities (Python).
- Deploy SEO, Learning to Rank models (softmax + 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

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 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

Guangzhou Securities

- Deploy a reinforcement learning model to derive the optimal strategy to execute large orders to minimize impact cost for the company.

TEACHING EXPERIENCE

Teaching Assistant in UMN CSCI 2041: Advanced Programming Principles

2019 Spring

Teaching Assistant in Mathematics and English

2014

Kongdian Middle School

Kongdian Village, Anhui Province

- Improved students' average scores in Math and English. Awarded with *Advanced Social Practice Student Prize*.

SERVICES

Multimedia Technical Support

09/2016-09/2017

Liaison Department of Student Union

Tsinghua University

- Supported large screen interactive multimedia display system in orientation, Ph.D Candidates Conference.

Violinist

09/2013-09/2015

SKILLS

Computer Speciality

- Python, Java, Sql, Kafka, Mongodb, Druid

Mathematics Speciality

- Numerical Methods, PDE

Finance Speciality

- CFA Level I, Securities/Funds Practitioner Qualification Certificate

PUBLICATIONS

- Ruoyan Kong, Haiyi Zhu, and Joseph Konstan. 2019. Learning to Ignore: A Study of Organization-Wide Email Effectiveness. under review
- 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