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 3.79, 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.
- I conduct mixed-methods studies, along with machine learning and iterative design techniques to design enhancements to an organizational bulk email system to support multi-stakeholder prioritization.

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.

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, CSS/HTML, CUDA, Javascript
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, and Joseph A. Konstan. Learning to Ignore: A Case Study of Organization-Wide Bulk Email Effectiveness. To appear in Proceedings of the ACM on Human-Computer Interaction (accepted to CSCW 2021).
- Ruoyan Kong, Haiyi Zhu, Chuankai Zhang, Jin Kang, and Joseph Konstan. COVID-19 as Reflected in University President Bulk Email. under review
- Ruoyan Kong, Ruobing Wang. Virtual Reality System for Invasive Therapy. 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