RUOYAN KONG

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EDUCATION

University of Minnesota - Twin Cities   Minneapolis, US
- Ph.D. in Computer Science (GPA 3.82, Advisor: Prof. Joseph Konstan)   09/2018 – 05/2023

Tsinghua University   Beijing, China
- Master of Science in Finance (GPA 3.5, Advisor: Prof. Michael Powers)   09/2016 - 07/2018

University of Science and Technology of China(USTC)   Hefei, China
- Bachelor of Science in Information and Computing Science (GPA 3.92, Advisor: Prof. Qi Liu)   09/2012 - 06/2016
- Minor subject: Computer Science

PUBLICATIONS

Conferences and Journal Articles

- Ruoyan Kong, Ruixuan Sun, Charles Chuankai Zhang, Chen Chen, Sneha Patri, Gayathri Gajjela, and Joseph A. Konstan. 2023. Getting the Most from Eye-Tracking: User-Interaction Based Reading Region Estimation Dataset and Models. In Proceedings of the 2023 Symposium on Eye Tracking Research and Applications (ETRA '23). Association for Computing Machinery, New York, NY, USA, Article 10, 1-7. https://doi.org/10.1145/3588015.3588404

- Aridor, Guy, Duarte Gonçalves, Daniel Kluver, Ruoyan Kong, and Joseph Konstan. 2022. The Economics of Recommender Systems: Evidence from a Field Experiment on MovieLens. ACM Transactions on Economics and Computation (EC2023).

- Joseph A. Konstan, Ruoyan Kong. 2023. The Challenge of Organizational Bulk Email Systems: Models and Empirical Studies. In The Elgar Companion to Information Economics. Edward Elgar Publishing.

- Yunzhong He, Cong Zhang, Ruoyan Kong, Chaitanya Kulkarni, Qing Liu, Ashish Gandhe, Amit Nithianandan, and Arul Prakash. 2023. HierCat: Hierarchical Query Categorization from Weakly Supervised Data at Facebook Marketplace. In Companion Proceedings of the ACM Web Conference 2023 (WWW '23 Companion). Association for Computing Machinery, New York, NY, USA, 331-335. https://doi.org/10.1145/3543873.3584622

- Ruoyan Kong, Chuankai Zhang, Ruixuan Sun, Vishnu Chhabra, Tanushsrisai Nadimpalli, Joseph A. Konstan. 2022. Multi-Objective Personalization in Multi-Stakeholder Organizational Bulk E-mail: A Field Experiment. Proc. ACM Hum.-Comput. Interact., Vol. 6, No. CSCW2, Article 528. DOI:https://doi.org/10.1145/3555641

- Charles Chuankai Zhang, Mo Houtti, C. Estelle Smith, Ruoyan Kong, and Loren Terveen. 2022. Working for the Invisible Machines or Pumping Information into an Empty Void? An Exploration of Wikidata Contributors' Motivations. Proc. ACM Hum.-Comput. Interact. 6, CSCW1, Article 135. https://doi.org/10.1145/3512982

- Ruoyan Kong, Haiyi Zhu, and Joseph A. Konstan. 2021. Learning to Ignore: A Case Study of Organization-Wide Bulk Email Effectiveness. Proc. ACM Hum.-Comput. Interact. 5, CSCW1, Article 80. DOI:https://doi.org/10.1145/3449154

- Hongke Zhao, Qi Liu, Yong Ge, Ruoyan Kong, Enhong Chen "Group Preference Aggregation: A Nash Equilibrium Approach," 2016 IEEE 16th International Conference on Data Mining (ICDM), 2016, doi: 10.1109/ICDM.2016.0079.

Workshop Papers

- Ruixuan Sun, Ruoyan Kong, Qiao Jin, and Joseph A. Konstan. Less Can Be More: Exploring Population Rating Dispositions with Partitioned Models in Recommender Systems. 2nd Workshop on Group Modeling, Adaptation and Personalization (GMAP 2023).

- Ruoyan Kong, Zhanlong Qiu, Yang Liu, and Qi Zhao. "NimbleLearn: A Scalable and Fast Batch-mode Active Learning Approach." In 2021 International Conference on Data Mining Workshops (ICDMW), pp. 350-359. IEEE, 2021. doi: 10.1109/ICDMW53433.2021.00050.

- Ruoyan Kong, Ruobing Wang and Zitao Shen, "Virtual Reality System for Invasive Therapy," 2021 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), 2021, doi: 10.1109/VRW52623.2021.00227.

- Ruoyan Kong, Haiyi Zhu, and Joseph Konstan. 2020. Organizational Bulk Email Systems: Their Role and Performance in Remote Work. New Future of Work.

Under Review Papers

- Aridor, Guy, Duarte GonÃ§alves, Daniel Kluver, Ruoyan Kong, and Joseph Konstan. 2022. The Economics of Recommender Systems: Evidence from a Field Experiment on MovieLens." arXiv preprint arXiv:2211.14219. https://doi.org/10.48550/arXiv.2211.14219 (Under Review for American Economic Review)
- Ruoyan Kong, Joseph A. Konstan. 2023. Socially-embedded Agents in Organizational Contexts – Bulk Email as an Example. (Under Review Book Chapter for Intelligent Systems in the Workplace: Design, Applications, and User Experience. Springer Publishing.)
- Ruixuan Sun, Avinash Akella, Ruoyan Kong, Moyan Zhou and Joseph Konstan. 2023. Interactive Content Diversity and User Exploration in Online Movie Recommenders: A Field Experiment.

Under Preparation Papers
- Ruoyan Kong, Ye Yuan, Ruixuan Sun, Chuankai Zhang, and Joseph A. Konstan. 2023. CommTool: Supporting Organizations Evaluate Bulk Emails. (Under Preparation Conference Paper, for The 26th ACM Conference On Computer-Supported Cooperative Work And Social Computing).

INDUSTRIAL EXPERIENCE

Meta   *05/2022-08/2022*
Product to Product Recommendation   PhD Software Engineer Intern, *Bellevue*
  – Predicting the next product a user will like accurately saves users' search time and bring revenue for platforms. I developed a two-tower neural network model to predict users' interactions with products given their previously clicked products, improving roc_auc by over 10% (Hive, Spark, PHP, python).

Meta   *06/2021-08/2021*
Search Engine Optimization - User Query Understanding   PhD Software Engineer Intern, *Bellevue (remote)*
  – Directing users to the correct product category when there is a large dynamic list of product categories. I developed an XLM model to classify the hierarchical categories of search queries, improving the recall of query categorization in marketplace by 15% (Pytorch, Hive, Hadoop, published in WWW23).

Amazon   *05/2020-08/2020*
Fraud Detection with Active Learning   Applied Scientist Intern, *Seattle (remote)*
  – Detecting large quantities of transaction fraud with limited human labeling resources is needed by e-commerce platforms. I developed a Deep Imitation Batch-Mode Active Learning Model to optimize the number of human labels needed, reducing the budget for fraud detection by 80% (AWS, Tensorflow, published in ICDMW21).

Seagate   *06/2019-08/2019*
Natural Language Processing   Data Science Intern, *MN*
  – Understanding the trends in social media is important for organizations to build brand awareness. I built an NLP trend detection model (DLNP Topic Extraction + W2V + tsne topic clustering) to catch market feedback and industry opportunities. I also deployed a softmax Learning-to-Rank + DNN model to improve products' searching ranks, reaching a 90 % ordered-pair accuracy (Python, SQL, Tensorflow, Docker).

RESEARCH EXPERIENCE

Towards an Effective Organization-Wide Bulk Email System   *Ongoing*
Supervisor: Prof. Joseph Konstan   *Grouplens Lab, University of Minnesota*
  – In organizations, ineffective communication results in substantial wasted employee time, lack of awareness of organizational goals, and high financial costs. I conduct mixed-methods studies, along with machine learning and iterative design techniques, to design technologies to improve organizational communication.
  – I built several bulk email personalization/delivering/evaluation platforms based on results from longitudinal field experiments (python + javascript + html + vue + firebase, e.g., http://www.comm-tool.com/).

A Risk Finance Paradigm for Dependent Catastrophe Losses with Pareto Severities   *09/2017-12/2017*
Supervisor: Prof. Michael Powers   *School of Economics and Management, Tsinghua University*

Group Recommendation: An Approach Based on Nash Equilibrium   *01/2015-06/2015*
Supervisor: Prof. Qi Liu   Department of Data Mining, National Engineering Laboratory for Language Information Processing
  – When recommending products for multiple stakeholders, the recommendations have to satisfy the whole group's preferences. We built a Nash game to simulate the selections of stakeholders in a group to capture their interactions and to ensure fairness, achieving a Hit Rate of 10%.

Effect of Intramuscular Fat on Skeletal Muscle Mechanics *07/2015-09/2015*
Supervisor: Prof. Nilima Nigam *Simon Fraser University, CA*
 – Understanding the biomechanics of skeletal muscle is important in predicting a range of health outcomes. I
   implemented C++ code of different types of skeletal muscle with finite element tool dealii.

TEACHING EXPERIENCE

Advanced Programming Principles:	Teaching Assistant in UMN CSCI 2041	*2019 Spring*
User Interface Design:	*Teaching Assistant in UMN CSCI 5115*	*2020 Fall*
Recommender Systems:	*Teaching Assistant in UMN CSCI 5123*	*2021 Fall*

AWARDS AND SERVICES

- Reviewers of CSCW 2021/2023, IEEE VR 2023, IJHCI 2022, IUI 2023, CHI 2023
- Grand Prize @ Wells Fargo Campus Analytics Challenge, top 4   2020
- First Prize Scholarship, Tsinghua University, *top* 3%   *2017*
- *Outstanding Graduates, USTC,* top 3%   *2016*
- *Gold Award of University's Excellent Students, USTC,* top 3%   *2014*
- *National Scholarship, National Ministry of Education of China,* top 1%   *2013*

SKILLS

Computer Speciality Python, Java, Sql, Kafka, Druid, Hive/Hadoop, Angular, CSS/HTML, CUDA, Javascript
Finance Speciality CFA Level I