ZIWEI ZHU

https://zziwei.github.io/
zhuziwei@tamu.edu
(979)-985-8435

Texas A&M University
Computer Science and Engineering Department
College Station, TX 77843

EDUCATION

Ph.D. Texas A&M University, USA, Computer Science 2016.09 - Now
Dissertation: "Toward Responsible Recommender Systems"
Advisor: Dr. James Caverlee
GPA: 4.0/4.0

B.S. Wuhan University, China, Computer Science 2012.09 – 2016.07
GPA: 3.77/4.0

RESEARCH INTERESTS

I am broadly interested in **data mining**, **machine learning**, and **information retrieval**, with a specific focus on augmenting **responsibility** in **AI-powered user-centered systems** to provide fair, unbiased, accountable, and trustworthy services for both end users and society-at-large.

RESEARCH EXPERIENCE

Research Assistant, InfoLab, Texas A&M University, TX 2017.09 - Now
Advisor: Dr. James Caverlee

- Conduct research on responsible recommender systems, including tasks of: i) identifying unfairness/bias issues in recommender systems; ii) analyzing the underlining mechanism and potential impact of these issues; and iii) designing new data mining, machine learning, and information retrieval techniques to fight these issues.

Research Intern, Netflix, CA 2020.05 – 2020.08
Mentors: Jingu Kim, Trung Nguyen, and Aish Fenton

- Conducted research to analyze and enhance fairness for new items in cold-start recommenders.

Research Intern, Comcast Applied AI Lab, DC 2019.05 – 2019.08
Mentor: Shahin Sefati

- Conducted research on addressing the cold-start problem for new users and items in recommender systems via deep learning algorithms.

Research Assistant, ESP Lab, Texas A&M University, TX 2016.09 – 2017.08
Advisor: Dr. Roozbeh Jafari

- Conducted research on human gestures recognition and cognitive status analysis using Inertial Measurement Units.

TEACHING EXPERIENCE

Guest Lecturer, CSCE 489, Special Topics in Recommender Systems — 2021 Spring
Computer Science and Engineering Department, Texas A&M University

Teaching Assistant, CSCE 489, Special Topics in Recommender Systems — 2021 Spring
Computer Science and Engineering Department, Texas A&M University

Teaching Assistant, CSCE 676, Data Mining and Analysis — 2019 Fall
Computer Science and Engineering Department, Texas A&M University

Teaching Assistant, CSCE 206, Structured programming in C — 2017 Fall
Computer Science and Engineering Department, Texas A&M University

PUBLICATIONS

Refereed Publications

WWW 22 James Kotary, Ferdinando Fioretto, Pascal Van Hentenryck, and **Ziwei Zhu**. End-to-end Learning for Fair Ranking Systems. The Web4Good special track in 33rd ACM International Conference on World Wide Web, 2022.

WSDM 22 **Ziwei Zhu** and James Caverlee. Fighting Mainstream Bias in Recommender Systems via Local Fine Tuning. The 15th ACM International Conference on Web Search and Data Mining, 2022.

KDD 21 **Ziwei Zhu**, Yun He, Xing Zhao, and James Caverlee. Popularity Bias in Dynamic Recommendation. The 27th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2021.

SIGIR 21 **Ziwei Zhu**, Jingu Kim, Trung Nguyen, Aish Fenton, and James Caverlee. Fairness among New Items in Cold Start Recommender Systems. The 44th International ACM SIGIR Conference on Research and Development in Information Retrieval, 2021.

WSDM 21 **Ziwei Zhu**, Yun He, Xing Zhao, Yin Zhang, Jianling Wang, and James Caverlee. Popularity-Opportunity Bias in Collaborative Filtering. The 14th ACM International Conference on Web Search and Data Mining, 2021.

WWW 21 Xing Zhao, **Ziwei Zhu**, and James Caverlee. Rabbit Holes and Taste Distortion: Distribution-Aware Recommendation with Evolving Interests. The 32th International Conference on World Wide Web, 2021.

SDM 21 Jianling Wang, Kaize Ding, **Ziwei Zhu**, and James Caverlee. Session-based Recommendation with Hypergraph Attention Networks. The 2021 SIAM International Conference on Data Mining.

SIGIR 20 **Ziwei Zhu**, Shahin Sefati, Parsa Saadatpanah, and James Caverlee. Recommendation for New Users and New Items via Randomized Training and Mixture-of-Experts Transformation. The 43rd International ACM SIGIR Conference on Research and Development in Information Retrieval, 2020.

SIGIR 20 **Ziwei Zhu**, Jianling Wang, and James Caverlee. Measuring and Mitigating Item Under Recommendation Bias in Personalized Ranking Systems. The 43rd International ACM SIGIR Conference on Research and Development in Information Retrieval, 2020.

RecSys 20 **Ziwei Zhu**, Yun He, Yin Zhang, and James Caverlee. Unbiased Implicit Recommendation and Propensity Estimation via Combinational Joint Learning. The 14th ACM Conference on Recommender Systems, 2020. (short paper)

RecSys 20 Yin Zhang, **Ziwei Zhu**, Yun He, and James Caverlee. Content-Collaborative Disentanglement Representation Learning for Enhanced Recommendation. The 14th ACM Conference on Recommender Systems, 2020.

EMNLP 20 Yun He, **Ziwei Zhu**, Yin Zhang, Qin Chen, and James Caverlee. Infusing Disease Knowledge into BERT for Health Question Answering, Medical Inference and Disease Name Recognition. The 2020 Conference on Empirical Methods in Natural Language Processing.

WWW 20 Xing Zhao, **Ziwei Zhu**, Majid Alfifi, and James Caverlee. Addressing the Target Customer Distortion Problem in Recommender Systems. The 31st International Conference on World Wide Web, 2020. (short paper)

WSDM 20 Xing Zhao, **Ziwei Zhu**, Yin Zhang, and James Caverlee. Improving the Estimation of Tail Ratings in Recommender System with Multi-Latent Representations. The 13th ACM International Conference on Web Search and Data Mining, 2020.

WSDM 20 Jianling Wang, Kaize Ding, **Ziwei Zhu**, Yin Zhang, and James Caverlee. Elite Opinion Leaders in Recommendation Systems: Elicitation and Diffusion. The 13th ACM International Conference on Web Search and Data Mining, 2020

WSDM 20 Jianling Wang, **Ziwei Zhu**, and James Caverlee. User Recommendation in Content Curation Platforms. The 13th ACM International Conference on Web Search and Data Mining, 2020.

WWW 19 **Ziwei Zhu**, Jianling Wang, and James Caverlee. Improving Top-K Recommendation via Joint Collaborative Autoencoders. The 30th International Conference on World Wide Web, 2019. (short paper)

CIKM 18 **Ziwei Zhu**, Xia Hu, and James Caverlee. Fairness-Aware Tensor-Based Recommendation. The 27th ACM International Conference on Information and Knowledge Management, 2018.

ICDM 18 Yun He, Haochen Chen, **Ziwei Zhu**, and James Caverlee. Pseudo-Implicit Feedback for Alleviating Data Sparsity in Top-K Recommendation. The 2018 IEEE International Conference on Data Mining, 2018. (short paper)

BSN 17 **Ziwei Zhu**, Sebastian Ober, and Roozbeh Jafari, Modeling and Detecting Student Attention and Interest Level Using Wearable Computers. The 14th IEEE International Conference on Wearable and Implantable Body Sensor Networks, 2017.

Workshop Papers

SSL 21 Yun He, **Ziwei Zhu**, Yin Zhang, Qin Chen and James Caverlee. Infusing disease knowledge into BERT for Health Question Answering, Medical Inference and Disease Name Recognition. The Workshop on Self-Supervised Learning for the Web at WWW, 2021.

FatRec 18 **Ziwei Zhu**, Jianling Wang, Yin Zhang, and James Caverlee. Fairness-Aware Recommendation of Information Curators. The 2nd FATREC Workshop on Responsible Recommendation, 2018.

PRESENTATIONS

Invited Talks

- "Fairness among New Items in Cold Start Recommender Systems" 2021.07
  Netflix Research Seminar
- "Toward Fairness-aware Recommender Systems" 2021.04
  University of North Texas
- "Item Fairness in Recommender Systems" 2020.08
  Netflix Research Seminar

Conference Oral Presentations

- "Popularity Bias in Dynamic Recommendation" 2021.08
  ACM SIGKDD Conference
- "Fairness among New Items in Cold Start Recommender Systems" 2021.07
  ACM SIGIR Conference
- "Popularity-Opportunity Bias in Collaborative Filtering" 2021.03
  ACM WSDM Conference
- "Recommendation for New Users and New Items" 2020.07
  ACM SIGIR Conference
- "Measuring and Mitigating Under-Recommendation Bias in Personalized Ranking" 2020.07
  ACM SIGIR Conference
- "Fairness-Aware Tensor-Based Recommendation" 2018.10
  ACM CIKM Conference

Conference Poster Presentations

- "Unbiased Implicit Recommendation via Combinational Joint Learning" 2020.09
  ACM RecSys Conference
- "Improving Top-K Recommendation via Joint Collaborative Autoencoders" 2019.05
  ACM Web Conference

PROFESSIONAL SERVICE

Conference Program Committees

- ACM SIGIR Conference: 2022
- ACM KDD Conference: 2022

- ACM WSDM Conference: 2022

Conference External Reviewer

- ACM Web Conference: 2018, 2019, 2021, 2022
- ACM SIGIR Conference: 2019, 2020, 2021
- ACM RecSys Conference: 2021
- ACM WSDM Conference: 2021

Journal Reviewer

- IEEE Transactions on Knowledge and Data Engineering
- IEEE Transactions on Services Computing
- IEEE Intelligent Systems
- Information Retrieval Journal
- ACM Transactions on Information Systems
- Information Processing and Management
- Big Data Journal
- Knowledge-based Systems
- Machine Learning Journal

Student Volunteer

- ACM WSDM Conference: 2020

RESEARCH PROPOSAL WRITING

Amazon Research Awards: Fairness in recommendation without demographics 2021.03
PI: James Caverlee

- Led the effort to organize and coordinate the proposal writing, and significantly contributed to the proposals of two research objectives – "Evaluate and Enhance Anonymous Group Fairness" and "Evaluate and Enhance Individual fairness".

NSF FAI: Towards Fairness in Deep Neural Networks with Learning Interpretation 2019.12
PI: Xia Hu; Co-PI: James Caverlee, Na Zou, Chaitanya Lakkimsetti

- Contributed to the proposal writing about one of the research tasks – "Fairness-Aware Recommendation via Feature Interpretation".

NSF EAGER: Fairness-Aware Personalized Recommendations 2018.08
PI: James Caverlee

- Contributed to the proposal writing about the technical background and the main research plan of how to measure and enhance recommendation fairness.

HONORS AND AWARDS

- SIGIR Travel Grant 2021.07

- WSDM Travel Grant 2021.03
- SIGIR Travel Grant 2020.07
- CIKM Travel Grant 2018.09
- First Class Scholarship at Wuhan University (top 5% students) 2015.10
- National Scholarship, Wuhan University (top 1% students) 2014.10
- Third Class Scholarship at Wuhan University (top 30% students) 2013.10