

Tianxin Wei

Email: rouseau@mail.ustc.edu.cn Phone: (+86) 17318530968
Address: Room 411, No.4 Building, USTC, Hefei, Anhui, 230027, P. R. China

EDUCATION

University of Science and Technology of China (USTC), Anhui, China Aug. 2016 – July 2020

AI talent class, School of the Gifted Young, Bachelor of Computer Science

Overall GPA: 3.61 (87/100) Overall GPA without the courses of last semester: 3.74 (88/100)

Major GPA: 3.82 (89/100) Ranking top 10% of 224 students in the major

Core Courses: Operating Systems(95) / Introduction to Artificial Intelligence(95) / Introduction to Algorithms(92) / Fundamentals of Operations Research (96) / Introduction to Pattern Recognition(94)

RESEARCH INTERNS

- Visiting scholar in Prof. Wei Wang & Yizhou Sun's group July 2019 - Sept. 2019
Department of Computer Science, University of California, Los Angeles, USA
- Remote research intern in Prof. Zhangyang Wang's group Feb. 2020 – June 2020
Department of Electrical & Computer Engineering, University of Texas at Austin, USA
- Remote intern advised by Dr. Ruirui Li in Amazon Alexa Group Aug. 2020 – present

PUBLICATIONS (* DENOTES EQUAL CONTRIBUTION)

- “Fast Adaptation for Cold-start Collaborative Filtering with Meta-learning”
Tianxin Wei, Ziwei Wu, Ruirui Li, Ziniu Hu, Fuli Feng, Xiangnan He, Yizhou Sun, and Wei Wang.
Accepted by the 20th IEEE International Conference on Data Mining (Full Oral, Accept rate: 9.8%)
- “Model-Agnostic Counterfactual Reasoning for Eliminating Popularity Bias in Recommender System”
Tianxin Wei, Fuli Feng, Jiawei Chen, Chufeng Shi, Ziwei Wu, Jinfeng Yi, Xiangnan He
Submitted to WWW 2021 as the first author
- “Adversarial Self-supervised Learning for Speaker Identification”
Tianxin Wei, Ruirui Li, Oguz Elibol
To be submitted to NAACL 2021 as the first author
- “Unpaired Multimodal Neural Machine Translation via Reinforcement Learning”
Yijun Wang*, Tianxin Wei*, Qi Liu, Enhong Chen
Submitted to DASFAA 2021 as the Co-first author
- “AR-Stock: Deep Augmented Relational Stock Prediction”
Tianxin Wei, Yuning You, Tianlong Chen
To be submitted as the first author

RESEARCH EXPERIENCE

Adviser: Professor Wei Wang & Yizhou Sun | Department of CS | UCLA Aug. 2019 – Mar. 2020

Project: Fast Adaptation for Cold-start Collaborative Filtering with Meta-learning

- I proposed a novel meta-learning paradigm, named MetaCF, that aims to learn an accurate collaborative filtering model that can be well-generalized for fast adaptations on fresh users with limited interactions;
- I designed a dynamic subgraph sampling that accounts for the dynamic arrival of fresh users and stabilizes the adaption procedure by optimizing the learning rates for adaption in a fine-grained manner. We also incorporated potential interactions to benefit the collaborative filtering models and alleviate the data sparsity problem.
- The paper, which I'm the first author, has been accepted by ICDM 2020 as a long paper.

Adviser: Vice Dean Xiangnan He | USTC & Jinfeng Yi | JD AI Research

Feb. 2020 – June 2020

Project: Eliminating Popularity Bias in Recommender System via Counterfactual Reasoning

- The general aim of the recommender system is to provide personalized suggestions to users, which is opposed to suggesting popular items; however, the normal training paradigm, i.e., fitting a recommender model to recover the user behavior data with pointwise or pairwise loss, makes the model biased towards popular items;
- In this work, I explored the popularity bias issue from a novel and fundamental perspective --- cause-effect. I identified that popularity bias lies in the direct effect from the item node to the ranking score, such that an item's intrinsic property is the cause of mistakenly assigning it a higher ranking score;
- I am the first to formulate the causal graph for recommendation and proposed a model-agnostic counterfactual reasoning framework that trains a recommender model according to the causal graph via a multi-task training schema and performs counterfactual inference to eliminate bias;
- The paper has been submitted to **WWW** as the first author.

Adviser: Professor Zhangyang Wang | Department of ECE | UT-Austin

Jan. 2020 – May. 2020

Project: AR-Stock: Deep Augmented Relational Stock Prediction

- I proposed to extend the traditional graph neural network to accurately predict stock trends by leveraging the rich information in the stock knowledge graph;
- I designed a geometric augmentation approach to discover hidden long-range dependencies between stocks. Also, I leveraged self-supervised learning to facilitate GCN training and to enforce global and local graph structure awareness.

Adviser: Professor Qi Liu & Professor Enhong Chen | CS | USTC

June. 2020 – Aug. 2020

Project: Unpaired Multimodal Neural Machine Translation via Reinforcement Learning

- To resolve the data scarcity problem for low resource language pairs in machine translation, I designed a translation model with the image description dataset which is much easier to obtain but harder to use than traditional multi-lingual dataset;
- Designed a novel reward function for reinforcement learning based on the image caption model to capture the consistency between the language and images;
- The paper has been submitted to **DASFAA** as the co-first author and a patent is obtained.

Adviser: Dr. Ruirui Li & Dr. Oguz Elibol | Amazon Alexa

Aug 2020-present

Project: Adversarial Self-supervised Learning for Speaker Identification

- I introduced both frame-mask and frequency-mask based self-supervised reconstruction tasks to enhance the training of speaker identification task in the context of multi-task learning;
- I designed the adversarial loss to enhance the self-supervision reconstruction, to improve the identification accuracy.

SERVICES & AWARDS & PATENTS

- Invited Journal Reviewer: TOIS, TKDE
- Artificial Intelligence Honor Award (Top 5%)
- Outstanding Students Scholarship for four consecutive years at USTC, 2016 - 2019 (Top 10%)
- Outstanding Freshmen Scholarship at USTC, 2016
- Zero parallel corpus Multimodal neural machine translation method. Number: CN110245364A
Enhong Chen, Qi Liu, Yijun Wang, **Tianxin Wei**
- A meta-learning recommendation method for cold-start users. Being Processed
Xiangnan He, **Tianxin Wei**, Ziwei Wu, Fuli Feng
- Mitigating popularity bias in recommendation system via causal inference Being Processed
Xiangnan He, **Tianxin Wei**, Fuli Feng, Jiawei Chen, Jinfeng Yi