Zhankui He

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Education

Ph.D. in Computer Science and Engineering, UC San Diego, California *2019.09 - Present*

- Advisor: Prof. Julian McAuley
- Research Interests: Deep Learning, Recommender Systems, Personalization.

B.S. in Computer Science (Data Science Track), Fudan University, Shanghai *2015.09 - 2019.07*

- GPA: 3.7/4.0. Rank: 1^{st}/41.
- 2019 Outstanding Graduates in Shanghai.

Exchange Student, National University of Singapore (NUS), Singapore *2017.08 – 2017.12*

- 2017 Oriental CJ Scholarship.

Research Experience

Adversarial Learning for Recommendation System | Research Assistant **Singapore**
Mentor: ***Xiangnan He****, Senior Research Fellow, LMS Lab, NUS*
Advisor: ***Tat-Seng Chua****, Chair Professor, LMS Lab, NUS* *2017.09 – 2018.01*

- Finished preliminary experiments to demonstrate that traditional models like *MF* can be improved by enhancing their ***robustness to adversarial noise attack***.
- Designed and conducted experiments of our ***adversarial learning module*** (named *APR*) on traditional models like *MF* and finally ***improved the HR and NDCG by at least 9%*** compared with traditional models.
- Contributed to a second-author paper which has been accepted by ***SIGIR 2018***.

Neural Attentive Item Similarity Model for Recommendation | Research Assistant **Singapore**
Mentor: ***Xiangnan He****, Senior Research Fellow, LMS Lab, NUS*
Advisor: ***Tat-Seng Chua****, Chair Professor, LMS Lab, NUS* *2017.07 – 2017.11*

- Implemented a ***neural attentive model*** based on item-based model *FISM*. and extended ***standard attention*** to ***improvee performance on benchmark datasets by almost 5***%
- Contributed to a second-author paper which was accepted by ***TKDE 2018***.

MEAL: Multi-Model Ensemble via Adversarial Learning | Research Assistant **China & USA**
Advisor: ***Xiangyang Xue****, Professor & Vice Dean, School of Computer Science in Fudan* *2018.03 - 2018.09*

- Proposed a novel approach about multiple base-level networks ensemble with techniques in ***Knowledge Transfer***, to ***improve the performance*** and ***reduce the expensive cost*** on space and time at test-time.
- Achieved the improvement by about 2.2% on *ImageNet* compared with traditional ensemble model, with ***no more space or time requirement*** than a single base-level network.
- Contributed to a joint-first-author paper which was accepted by ***AAAI 2019***.

Hashtag Recommendation in Twitter with Friends Information | Summer Intern **USA**
Advisor: ***Kevin Chen-Chuan Chang****, Professor, Dataforward Lab, UIUC* *2018.07 - Present*

- Formulated an innovative task about ***Hashtag Recommendation for users given their profile information***. Constructed and released ***two datasets for these tasks*** to benefit the community.
- Demonstrated the effectiveness of profile information by ***adding friends information to traditional models***, which achieved over 20% improvement compared with the text-only state-of-the-art models.
- Inspired by *supervised attention* in Computer Vision, proposed a novel ***supervised attention mechanism*** to model friends information and ***achieved over 7% improvement in experiments***.

Publication

- **NAIS: Neural Attentive Item Similarity Model for Recommendation** Xiangnan He, **Zhankui He**, Jingkuan Song, Zhenguang Liu, Yu-Gang Jiang & Tat-Seng Chua *IEEE Transactions on Knowledge and Data Engineering (TKDE) 2018*
- **Adversarial Personalized Ranking for Recommendation** Xiangnan He, **Zhankui He**, Xiaoyu Du, Tat-Seng Chua *ACM Special Interest Group on Information Retrieval (SIGIR) 2018*
- **MEAL: Multi-Model Ensemble via Adversarial Learning** Zhiqiang Shen*, **Zhankui He** *, Xiangyang Xue *AAAI Conference on Artificial Intelligence (AAAI) 2019 * Equal contribution to this paper.*
- **Adversarial-Based Knowledge Distillation for Multi-Model Ensemble and Noisy Data Refinement** Zhiqiang Shen, **Zhankui He** , Wanyun Cui, Jiahui Yu, Yutong Zheng, Chenchen Zhu, Marios Savvides *arXiv preprint arXiv:1908.08520*

Working Experience

Nvidia, Shanghai | AI Intern **China**
Mentor: ***Nic Ma****, Staff Software Engineer of Nvidia Shanghai* *2018.11 - 2019.06*

- Applied series of neural network pruning techniques for OCR model, reducing model size from 70MB to 5MB.
- Contributed to ***GFN User Feedback Analysis System*** development, using cutting-edge models like Bert for sentiment analysis, named entity recognition and semantic clustering about PC Games.
- Presented ***Deep Learning progress*** remotely (such as Bert, Recommender System) for Nvidia Vice President.

CitoryTech Ltd. (An AI start-up by 3 MIT and Harvard alumni) | Algorithm Intern **China**
Supervisor: ***Liu Liu****, CEO & Co-founder of CitoryTech Ltd* *2017.12 - 2018.04*

- Implemented state-of-the-art image segmentation models such as *U-net* for ***Satellite Imagery Segmentation***.
- Contributed to ***CityFace, a Street Perception Evaluation System*** by computing the objects information of over 10,000,000 Street View images in about 300 cities in China via Deep Learning algorithms like *MaskRCNN*.
- Constructed Deep Learning networks of Scene Recognition for ***StreetTalk, a Navigation Application with Augmented Reality***, which has been selected into ***MIT*** 's Future City Innovation Connector Project.

Honor & Award

- **2019 HDSI Graduate Prize Fellowship** (10/100+ Ph.D. students in UC, San Diego)
- **2019 Outstanding Graduates in Shanghai** (2/41 in Data Science School, Fudan University)
- **2019 Fudan University Graduates Star Nomination** (22/3000 in Fudan University)
- **2016 Shanghai Government Sholarship** (1/117 in Computer Science School, Fudan University)
- **2016 Fudan Excellent Student** (2/117 in Computer Science School, Fudan University)
- **2017 Oriental CJ Scholarship** (less than 9% of exchange students from Fudan University)
- **2018 Fudan Excellent Student** (2/41 in Data Science School, Fudan University)
- **2016 Fudan University Hackthon InnorSpring Prize** (top 9 among 55 groups)
- **2017 Computer Science Elite Project Scholarship** (a research grant for students in Elite Project)

Skill & Interest

- **Programming Languages:** Python, Matlab, C/C++, Bash
- **Language:** Mandarin Chinese (Native), English (Fluent)