# Zhankui He | CS

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## Education

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

- **Overall GPA:** 3.67/4.0, **Rank:** 3/41.
- **Key Awards:** • Shanghai Government Scholarship (1/117 ) • Excellent Student Award (2/117).
- **Core Courses:** • Mathematical Analysis (4.0) • Linear Algebra (4.0) • Set Theory and Graph Theory(3.7) • C Language Programming (4.0) • Introduction to Database System (4.0) • Computer System II (4.0) • Analog Electronics (4.0) • Digital Logic and Component (4.0) • Data Visualization (4.0) • Big Data Analytics (4.0)
- **Others:** Selected into Elite Project (Talent training project in CS School for top 40 from 85 students.).

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

- **Experience:** Studied for 3 courses and worked in NUS *Lab for Media Search* (LMS Lab) with two papers accepted by *SIGIR 2018* and *TKDE 2018*, respectively.
- **Award:** 2017 Oriental CJ Scholarship (less than 9% of exchange students from Fudan University).

## Publication

- **MEAL: Multi-Model Ensemble via Adversarial Learning**
  Zhiqiang Shen\*, <u>**Zhankui He** \*</u>, Xiangyang Xue
  *AAAI Conference on Artificial Intelligencee (AAAI) 2019*

- **Adversarial Personalized Ranking for Recommendation**
  Xiangnan He, <u>**Zhankui He**</u>, Xiaoyu Du, Tat-Seng Chua
  *ACM Special Interest Group on Information Retrieval (SIGIR) 2018*

- **NAIS: Neural Attentive Item Similarity Model for Recommendation**
  Xiangnan He, <u>**Zhankui He**</u>, Jingkuan Song, Zhenguang Liu, Yu-Gang Jiang & Tat-Seng Chua
  *IEEE Transactions on Knowledge and Data Engineering (TKDE) 2018*

- **PHAT+G: Personalized neural Hashtag recommendation Approach based on Text and Graph**
  Amin javari, <u>**Zhankui He** \*</u>, Zijie Huang\*, Kevin Chen-Chuan Chang
  **Submitted to** *The Web Conference(WWW) 2019*
  *\* Equal contribution to this paper.*

## 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*

- Realized three state-of-the-art user-based recommendation system models via TensorFlow.
- Finished preliminary experiments by comparing adversarial noise with random noise, demonstrating that traditional models like *MF* can be improved by enhancing their ***robustness to adversarial noise attack***.
- To find out the effectiveness of our ***adversarial learning approach*** (named *APR*), designed a series of experiments of *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*

- Reproduced classic ***item-based Factored Item Similarity Model (FISM)*** via TensorFlow.
- Implemented an item-based model based on *FISM* with attention neural network.

- *Extended standard attention* by adding a parameter on denominator of softmax considering the influence of item quantity, which *improved 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.

- Applied our *MEAL* on Image Classification, implemented experiments on *CIFAR*, *SVHN* and *ImageNet*.

- 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*.

- Explored new methods of combining the friend-only model with the tweet-only model, considering the limitations of mapping heterogeneous information into common embedding space.

- Contributed to a second-author paper which was submitted to *WWW 2019*.

## Working Experience

**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

- **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)

- **Interests:** Table Tennis, Swimming, Music