

Shuai Zhang

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Current position

2020-present **Postdoctoral Researcher**
DS3Lab, Department of Computer Science
Swiss Federal Institute of Technology in Zurich (**ETH Zurich**)
Led by Dr. Ce Zhang

Education

2019 **Doctor of Philosophy** in Computer Science
School of Computer Science and Engineering
University of New South Wales (**UNSW Sydney**)
Supervised by Dr. Lina Yao, Liming Zhu, and Sherry Xu

2014 **Bachelor** in Information System and Information Management
School of Information Management
Nanjing University (**NJU**)

Grants, honours & awards

2020 WSDM Best Paper Award Runner-Up

2019 NeurIPS, IJCAI, AAAI Travel Grant

2018 UNSW Postgraduate Research Student Support Funds

2017 ACM SIGIR Travel Grant

2016-2020 Data61 Student Scholarship, Data61, CSIRO

2016-2020 UNSW Tuition Fee Scholarship

2011-2013 People Scholarship, Nanjing University

Publications

CONFERENCE PAPERS

- 2021 *MicroRec: Accelerating Deep Recommendation Systems to Microseconds by Hardware and Data Structure Solutions.*
Wenqi Jiang, Zhenhao He, **Shuai Zhang**, Thomas B. Preußer, Kai Zeng, Liang Feng, Jiansong Zhang, Tongxuan Liu, Yong Li, Jingren Zhou, Ce Zhang, Gustavo Alonso.
The Fourth Conference on Machine Learning and Systems (**MLSys**).
- 2021 *Parameterization of Hypercomplex Multiplications.*
Aston Zhang, Yi Tay, **Shuai Zhang**, Alvin Chan, Anh Tuan Luu, Siu Hui, Jie Fu.
The International Conference on Learning Representations (**ICLR**), Spotlight Presentation.
- 2021 *Learning User Representations with Hypercuboids for Recommender Systems.*
Shuai Zhang, Huoyu Liu, Aston Zhang, Yue Hu, Ce Zhang, Yumeng Li, Tanchao Zhu, Shaojian He, Wenwu Ou.
The 14th ACM International Conference on Web Search and Data Mining (**WSDM**).
- 2021 *Ease.ML: A Lifecycle Management System for Machine Learning.*
Leonel Aguilar Melgar, David Dao, Shaoduo Gan, Nezihe Merve Gürel, Nora Hollenstein, Jiawei Jiang, Bojan Karlaš, Thomas Lemmin, Tian Li, Yang Li, Xi Rao, Johannes Rausch, Cedric Renggli, Luka Rimanic, Maurice Weber, **Shuai Zhang**, Zhikuan Zhao, Kevin Schawinski, Wentao Wu, Ce Zhang.
The Conference on Innovative Data Systems Research (**CIDR**).
- 2020 *Symmetric Metric Learning with Adaptive Margin for Recommendation.*
Mingming Li, **Shuai Zhang**, Fuqing Zhu, Liangjun Zang, Wanhui Qian, Jizhong Han, Songlin Hu.
The 34th AAAI Conference on Artificial Intelligence (**AAAI**), Oral presentation.
- 2020 *HyperML: A Boosting Metric Learning Approach in Hyperbolic Space for Recommender Systems.*
Lucas Vinh Tran, Yi Tay, **Shuai Zhang**, Gao Cong, Xiaoli Li.
The ACM International Conference on Web Search and Data Mining (**WSDM**).
Best Paper Award Runner-Up.
- 2019 *Quaternion Knowledge Graph Embeddings.*
Shuai Zhang, Yi Tay, Lina Yao, Qi Liu.
Thirty-third Conference on Neural Information Processing Systems (**NeurIPS**).
- 2019 *DeepRec: An Open-Source Toolkit for Deep Learning based Recommendation.*
Shuai Zhang, Yi Tay, Lina Yao, Bin Wu, Aixin Sun.
The 28th International Joint Conference on Artificial Intelligence (**IJCAI**), Demo.
Over 900 stars at GitHub.
- 2019 *Quaternion Collaborative Filtering for Recommendation.*
Shuai Zhang, Lina Yao, Lucas Vinh Tran, Aston Zhang, Yi Tay.

The 28th International Joint Conference on Artificial Intelligence (**IJCAI**).

- 2019 *Lightweight and Efficient Neural Natural Language Processing with Quaternion Networks.*
Yi Tay, Aston Zhang, Anh Tuan Luu, Jinfeng Rao, **Shuai Zhang**, Shuohang Wang, Jie Fu and
Siu Cheung Hui.
The 57th Annual Meeting of the Association for Computational Linguistics (**ACL**).

- 2019 *Holographic Factorization Machines for Recommendation.*
Shuai Zhang, Yi Tay, Anh Tuan Luu, Siu Cheung Hui, Lina Yao, Vinh Tran.
The 33rd AAAI Conference on Artificial Intelligence (**AAAI**), Spotlight Presentation.

- 2019 *Adaptive Cognitive Activity Recognition with Reinforced Attentive CNN.*
Xiang Zhang, Lina Yao, Xianzhi Wang, Wenjie Zhang, **Shuai Zhang**, and Yunhao Liu..
The 19th IEEE International Conference on Data Mining (**ICDM**).

- 2018 *NeuRec: On Nonlinear Transformation for Personalized Ranking.*
Shuai Zhang, Lina Yao, Aixin Sun, Sen Wang, Guodong Long, Manqing Dong.
The 27th International Joint Conference on Artificial Intelligence (**IJCAI**).

- 2017 *AutoSVD++: An Efficient Hybrid Collaborative Filtering Model via Contractive Auto-encoders.*
Shuai Zhang, Lina Yao, Xiwei Xu.
The 40th International ACM SIGIR Conference on Research and Development in Information
Retrieval (**SIGIR**), Short Paper.

JOURNAL ARTICLES

- 2019 *Unraveling Metric Vector Spaces with Factorization for Recommendation*
Shuai Zhang, Lina Yao, Bin Wu, Xiwei Xu, Xiang Zhang, Liming Zhu.
IEEE Transactions on Industrial Informatics.
- 2019 *Deep Learning based Recommender System: A Survey and New Perspectives*
Shuai Zhang, Lina Yao, Aixin Sun, Yi Tay.
ACM Computing Surveys.
- 2019 *Thing-of-Interest Recommendation in the Internet of Things: Requirements, Challenges and Directions*
Lina Yao, Xianzhi Wang, Quan Z. Sheng, Schahram Dustdar, **Shuai Zhang**.
IEEE Internet Computing.
- 2018 *Internet of Things Meets Brain-Computer Interface: A Unified Deep Learning Framework for Enabling Human-Thing Cognitive Interactivity*
Xiang Zhang, Lina Yao, **Shuai Zhang**, Salil S. Kanhere, Quan Z. Sheng, Yunhao Liu.
IEEE Internet of Things Journal .
- 2018 *Rating Prediction via Generative Convolutional Neural Networks based Regression*
Xiaodong Ning, Lina Yao, Xianzhi Wang, Boualem Benatallah, Manqing Dong, **Shuai Zhang**.
Pattern Recognition Letters.

BOOKS CHAPTERS

- 2021 *Deep Learning for Recommender Systems (to appear)*
Shuai Zhang, Yi Tay, Lina Yao, Aixin Sun, Ce Zhang.
Book Title: *Recommender Systems Handbook, Third Edition*.
Editors: Francesco Ricci, Lior Rokach, Bracha Shapira.
Press: Springer.
- 2019 *Recommender Systems ([Link](#))*
Shuai Zhang, Aston Zhang, Yi Tay.
Book Title: *Dive into Deep Learning*. 2019
Book Authors: Aston Zhang, Zack C. Lipton, Mu Li, and Alex J. Smola.
Over 8k stars at GitHub.
- 2019 *Deep Neural Networks meet Recommender Systems*
Shuai Zhang, Lina Yao, Aixin Sun, Guibing Guo, Xiwei Xu, Liming Zhu.
Book Title: *Big Data Recommender Systems: Recent Trends and Advances*, 2019
Book Editors: Osman Khalid, Samee U. Khan, and Albert Y. Zomaya.
Press: Institution of Engineering and Technology.

WORKSHOP PAPERS

- 2021 *Suspicious Massive Registration Detection via Dynamic Heterogeneous Graph Neural Networks*.
Xi Rao, **Shuai Zhang**, Zhichao Han, Zitao Zhang, Wei Min, Mo Cheng, Yinan Shan, Yang Zhao, Ce Zhang.
Workshop on Deep Learning on Graphs: Methods and Applications. (**AAAI Workshop**).
- 2019 *Next Item Recommendation with Self-Attentive Metric Learning*.
Shuai Zhang, Yi Tay, Lina Yao, Aixin Sun, Jake An.
Workshop on Recommender Systems Meet Natural Language Processing (**AAAI workshop**)

Teaching & Supervision

Teaching Assistant

- 2020 *Big Data*, Department of Computer Science, ETH Zurich.
2019 *Product Analytics*, UNSW Business School.

Supervision

- 2021 Alfonso Amayuelas (co-supervisor), master thesis, EPFL Lausanne.
2021 Maksimov Anton (co-supervisor), master thesis, ETH Zurich.
2018 Xiaocong Chen (co-supervisor), bachelor thesis, honors student of CSE, UNSW.

Service to the profession

Program Committee Member / Invited Reviewer

- 2021: ICML, AAAI, IJCAI (Senior PC), NAACL-HLT, EACL
- 2020: NeurIPS, EMNLP, AAAI, SIGIR, ACL, AACL-IJCNLP, KDD(sub-reviewer)
- 2019: IJCAI(sub-reviewer), ICDE workshop

Invited Journal Reviewer

Nature Communications, ACM computing surveys, ACM Transactions of Information Systems, IEEE Transactions on Knowledge and Data Engineering, IEEE Transactions on Mobile Computing, IEEE Journal of Biomedical and Health Informatics, IEEE Intelligent Systems, IEEE Access, PLOS ONE, Knowledge-based Systems, Pattern Recognition Letters, Neurocomputing, Engineering Applications of Artificial Intelligence, Multimedia Tools and Applications, etc.

Conference Volunteering

AAAI 2019, IJCAI 2019.

Industry Experience

- 2019-2020 Intern at **Amazon AI Lab**
 Mentored by Dr. Aston Zhang
 I wrote the chapter *Recommender Systems*, including model implementation, for the book *Dive into Deep Learning* (by Aston Zhang, Zack C. Lipton, Mu Li, Alexander J. Smola).
- 2018 Intern at **Tencent**
 Research on deep learning for news recommendation.
- 2018 Software Engineer at **OPPO**
 Develop Android applications.

Talks & Presentations

- 2020 *Think what you think: personalized recommendation*; Chinese Science Club in Zurich.
- 2020 *Towards the new generation of recommender systems*; shenlanxueyuan.
- 2019 *Personalized Recommendation: Neural Architectures and Beyond*; Nanjing University.
- 2019 *Quaternion Collaborative Filtering for Recommendation*; IJCAI'19, Macau.
- 2019 *Holographic Factorization Machines for Recommendation*; AAAI'19, Honolulu.
- 2019 *Next Item Recommendation with Self-Attentive Metric Learning*; Northeastern University (shenyang, Dec. 2018) and RecNLP'19 (Honolulu, Jan. 2019).
- 2018 *NeuRec: On Nonlinear Transformation for Personalized Ranking*; IJCAI'18, Stockholm.
- 2017 *Deep Learning for Recommender Systems*; RMIT University, Melbourne. Hosted by Prof. Mark Sanderson.