

# XIUZE ZHOU

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## EDUCATION

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<b>Xiamen University</b>	<b>09/2013-06/2016</b>
School of Aerospace Engineering	
M.Eng. in <i>Pattern Recognition and Intelligent Systems</i> GPA: 3.43/4.0	
Awards: Principal Level Scholarship (10/2013)	
Courses: Machine Learning, Design of Neural Networks, Digital Image Processing, Time Series Analysis, Pattern Recognition, Data Mining and Its Application, Artificial Intelligent: Theory and Application, Recommender System.	
<b>Zhejiang University of Science and Technology</b>	<b>09/2008-06/2012</b>
School of Automation and Electrical Engineering	
B.Eng. in <i>Automation</i> GPA: 3.23/4.0	
Awards: National Encouragement Scholarship (12/2011&12/2010); First-Class Scholarship (10/2011)	
Courses: C Programming, Embedded Systems, Computer Network and Communication, Computer Control System.	

## PROFESSIONAL EXPERIENCE

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<i>Research Fellow</i> , <b>School of Smart Education, Jiangsu Normal University</b>	<b>03/2023-Present</b>
<ul style="list-style-type: none"><li>Instructed graduate students in scientific research</li><li>Make regular presentations and exchanges</li></ul>	
<i>Senior Research Scientist</i> , <b>AI Research Institute of Hithink RoyalFlush Information Network</b>	<b>06/2019-Present</b>
<ul style="list-style-type: none"><li>Research the newest machine learning algorithms and recommender system technology on stocks and hot news</li><li>Apply neural network models to drug-target interaction prediction and evaluate the performance</li><li>Publish papers and apply for relevant patents for the corporation</li><li>Give lessons on Artificial Intelligence and Recommender Systems to the staff</li></ul>	
<i>Research Assistant</i> , <b>Big Data Lab of Xiamen University</b>	<b>06/2016-02/2019</b>
<ul style="list-style-type: none"><li>Instructed two undergraduate and three graduate students in scientific research</li><li>Tracked, studied, reproduced, and improved up-to-date machine learning methods</li><li>Published papers on machine learning and recommender systems</li></ul>	
<i>Software Engineer</i> , <b>Dragon SOFT</b>	<b>09/2013-06/2014</b>
<ul style="list-style-type: none"><li>Developed an electronic target practice system for security guards' shooting training</li><li>Recorded the track of users' shooting behavior from sensors in a database</li><li>Built a model analyzing users' shooting behavior concerning speed, acceleration and number of cylinders</li></ul>	
<i>Assistant Engineer</i> , <b>Gold Electronic</b>	<b>03/2012-07/2012</b>
<ul style="list-style-type: none"><li>Cooperated with motor companies, such as Zotye and BYD, on battery management system development</li><li>Developed a testing and analytics platform for performance of a lithium battery with C# (real-time data)</li><li>Used CAN bus to collect working data of batteries and analyzed the data for balance power</li></ul>	

## RESEARCH PROJECTS

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<b>Large Language Models-based Code Generation and Review</b>	<b>03/2023-Present</b>
<ul style="list-style-type: none"><li>Collect and process a large corpus of code snippets, programming tutorials, and relevant documentation</li><li>Pre-train LLMs and accelerate training and inference of the large model on multi-machine multi-GPUs</li><li>Iterate on the code generation and review process</li></ul>	
<b>Stable Diffusion-based AI Painting</b>	<b>06/2022-12/2022</b>
<ul style="list-style-type: none"><li>Explore and design prompt</li><li>Accelerate training and inference for diffusion process</li><li>Deploy trained models in the appropriate environment</li></ul>	
<b>Campus Recommendation System</b>	<b>03/2021-12/2021</b>
<ul style="list-style-type: none"><li>Built user profiles based on the data crawled from websites</li><li>Recommended information from within and outside the university based on faculty research, courses taught, and interests</li><li>Recommended information, such as courses from MOOC, and publications from Arxiv, to students</li></ul>	
<b>Online Education Explainable Recommender System, NSFC</b>	<b>06/2018-12/2018</b>
<ul style="list-style-type: none"><li>Summarized over 500,000 exercises and classified their knowledge points from all subjects</li><li>Applied matrix factorization for online learning and recommendation of exercises based on interaction of users</li><li>Added latent features learned by neural networks from exercises to online matrix factorization for better performance</li></ul>	
<b>Development of Memorizing Words APP</b>	<b>06/2017-02/2018</b>
<ul style="list-style-type: none"><li>Extracted the records of memorizing words of over 100,000 users from a database</li><li>Counted the pairs of error words with the co-occurrence rate to obtain a co-occurrence table</li><li>Provided words, along with situation pictures, to enhance memory and showed co-occurrence words from a table</li></ul>	

## RESEARCH

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### Research Interests

- Large Language Models
- Recommendation Systems
- Time Series

### Current Work

- [1] RecLLM: Large Language Model for Explainable Recommendation
- [2] Large Language Model for Generation of Medical Image Diagnostic Reports
- [3] BAT: Battery Assessment Transformer based Large Language Models for Remaining Useful Life Prediction
- [4] Semi-supervised for Recommendation

### Papers

- [1] Y. Ding, S. Jia, T. Ma\*, B. Mao, **X. Zhou**, L. Liu, D. Han, and M. Chen, "Integrating Stock Features and Global Information via Large Language Models for Enhanced Stock Return Prediction", Workshop of IJCAI2023, 2023.
- [2] Y. Lin, W. Zhang, **X. Zhou**, F. Lin\*, W. Zeng, L. Zou\*, Y. Liu, P. Wu, "Knowledge-aware Reasoning with Self-supervised Reinforcement Learning for Explainable Recommendation in MOOCs", Neural Computing and Applications, 2023. (accepted)
- [3] X. Gu, K. W. See, Y. Wang, C. Zang and **X. Zhou**, "Recent Advances in Data Preprocessing and Machine Learning Approaches for Battery's State of Charge and State of Health Estimation: A Review", 2023 IEEE International Future Energy Electronics Conference (IFEEEC), 2023. (accepted)
- [4] W. Zhang, Y. Lin, Y. Liu, P. Wu, F. Lin\*, and **X. Zhou\***, "Self-Supervised Reinforcement Learning with Dual-reward for Knowledge-aware Recommendation", Applied Soft Computing, Oct. 2022. (IF = 8.263)
- [5] M. Chen, T. Ma, and **X. Zhou\***, "CoCNN: Co-occurrence CNN for Recommendation", Expert Systems with Applications, Jun. 2022, 195, pp. 116595. (IF = 8.665)
- [6] D. Chen, W. Hong, and **X. Zhou\***, "Transformer Network for Remaining Useful Life Prediction of Lithium-Ion Batteries", IEEE Access, 2022, 10, pp. 19621-19628. (IF = 3.367, High Citation)
- [7] M. Chen, Yunhao Li, and **X. Zhou\***, "CoNet: Co-occurrence Neural Networks for Recommendation", *Future Generation Computer Systems*, Nov. 2021, 124, pp. 308-314. (IF = 7.307)
- [8] M. Chen, and **X. Zhou\***, "DeepRank: Learning to Rank with Neural Networks for Recommendation", *Knowledge-Based Systems*, Dec. 2020, 209, pp. 106478. (IF = 8.139)
- [9] K. Li, **X. Zhou**, F. Lin\*, W. Zeng, and G. Alterovitz, "Deep Probabilistic Matrix Factorization Framework for Online Collaborative Filtering", *IEEE Access*, Mar. 2019, 7, pp. 56117-56128. (IF = 3.367)
- [10] K. Li, **X. Zhou**, F. Lin\*, W. Zeng, B. Wang, and G. Alterovitz, "Sparse Online Collaborative Filtering with Dynamic Regularization", *Information Sciences*, Dec. 2019, 505, pp. 535-548. (IF = 8.233)
- [11] **X. Zhou**, W. Shu, F. Lin\*, and B. Wang, "Confidence-Weighted Bias Model for Online Collaborative Filtering", *Applied Soft Computing*, Sep. 2018, 70, pp. 1042-1053. (IF = 8.263)
- [12] **X. Zhou\*** and S. Wu, "Rating LDA Model for Collaborative Filtering", *Knowledge-Based Systems*, Oct. 2016, 110, pp. 135-143. (IF = 8.139)
- [13] F. Lin, **X. Zhou**, and W. Zeng\*, "Sparse Online Learning for Collaborative Filtering", *International Journal of Computers Communications & Control*, Apr. 2016, 11 (2), pp. 248-258. (IF = 2.093)
- [14] S. Lu, H. Chen, **X. Zhou**, B. Wang, H. Wang\*, and Q. Hong, "Graph-Based Collaborative Filtering with MLP", *Mathematical Problems in Engineering*, Dec. 2018, 2018, pp. 1-10. (IF = 1.009)
- [15] **X. Zhou**, F. Lin\*, L. Yang, J. Nie, Q. Tan, W. Zeng, and N. Zhang, "Load Balancing Prediction Method of Cloud Storage based on Analytic Hierarchy Process and Hybrid Hierarchical Genetic Algorithm", *SpringerPlus*, Nov. 2016, 5 (1), pp. 1989-2012. (IF = 1.780)
- [16] **X. Zhou\*** and S. Wu, "The Biterm Author Topic in the Sentences Model for E-Mail Analysis", *IEICE Transactions on Information and Systems*, Aug. 2017, E100.D (8), pp. 1852-1859. (IF = 0.770)

**Note:** \* indicates the corresponding author

## ACADEMIC SERVICE

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### Reviewer

*IEEE Transactions on Neural Networks and Learning Systems*  
*IEEE Transactions on Industrial Informatics*  
*ACM Transactions on Knowledge Discovery from Data*  
*IEEE Access*

## COMPETITIONS AND AWARDS

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The 2 <sup>nd</sup> Prize in the National Advanced Mathematics Contest for Undergraduates (Zhejiang)	12/2011
The 2 <sup>nd</sup> Prize in the Zhejiang Advanced Mathematics Contest for Undergraduates	04/2011
The 3 <sup>rd</sup> Prize in the Zhejiang Advanced Mathematics Contest for Undergraduates	10/2009 & 04/2010
The 3 <sup>rd</sup> Prize in the Zhejiang Physics Contest for Undergraduates	12/2009 & 12/2010
The 1 <sup>st</sup> Prize in the Electronics Design Contests, ZUST	12/2010