

# WENXUAN BAO

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## EDUCATION

**University of Illinois Urbana-Champaign**

**Champaign, IL, United States**

*Ph.D. Candidate in Computer Science*

*Jan 2021 - Present*

- GPA: 3.97/4.00, Thesis: Heterogeneous Machine Learning with Decentralized Data, Advisor: Prof. Jingrui He

**Tsinghua University**

**Beijing, China**

*B.Eng. in Automation, Minor in Statistics*

*Aug 2016 - Jun 2020*

- GPA: 3.91/4.00, Graduating Summa Cum Laude (top 2%), National Scholarship (top 2%)

## WORKING EXPERIENCE

**Jane Street Capital**

**New York, NY, United States**

*Quantitative Research Intern*

*May 2024 - Aug 2024*

- Used linear models and neural networks with BBO data to predict trading volumes of stocks across multiple time scales, supporting trading strategies.
- Applied large language models to extract and analyze key operational metrics from company current reports, automatically imputing missing data to support more informed investment decisions.

**ByteDance Ltd. | Pangle**

**Shanghai, China**

*Advertising System AI Intern*

*Jun 2020 - Dec 2020*

- Designed statistical models to improve the exposure of novel advertisements by 3 times.
- Optimized CVR prediction model to fasten the model calibration given limited historical data.
- Developed offline model evaluation tool to efficiently evaluate the model before deployment.

## RESEARCH INTERESTS

- **Trustworthy federated learning:** generalization, robustness, fairness, and privacy
- **Transfer learning:** test-time adaptation, domain adaptation, domain generalization

## PUBLICATIONS & PREPRINTS

### Conference

- [1] **Connecting Domains for Enhanced Generalization: An Approach to Integrating Data and Model Information**  
Tianxin Wei, Yifan Chen, Xinrui He, **Wenxuan Bao**, Jingrui He  
Proceedings of the 31th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD 2025**)
- [2] **BOBA: Byzantine-Robust Federated Learning with Label Skewness**  
**Wenxuan Bao**, Jun Wu, Jingrui He  
International Conference on Artificial Intelligence and Statistics (**AISTATS 2024**)
- [3] **FedSelect: Personalized Federated Learning with Customized Selection of Parameters for Fine-Tuning**  
Rishub Tamirisa, Chulin Xie, **Wenxuan Bao**, Andy Zhou, Ron Arel, Aviv Shamsian  
Conference on Computer Vision and Pattern Recognition (**CVPR 2024**)
- [4] **Adaptive Test-Time Personalization for Federated Learning**  
**Wenxuan Bao**, Tianxin Wei, Haohan Wang, Jingrui He  
Advances in Neural Information Processing Systems 36 (**NeurIPS 2023**)

- [5] **Optimizing the Collaboration Structure in Cross-Silo Federated Learning**  
Wenxuan Bao, Haohan Wang, Jun Wu, Jingrui He  
Proceedings of the 40th International Conference on Machine Learning (**ICML 2023**)
- [6] **Personalized Federated Learning with Parameter Propagation**  
Jun Wu, Wenxuan Bao, Elizabeth Ainsworth, Jingrui He  
Proceedings of the 29th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD 2023**)
- [7] **Deep Grouping Model for Unified Perceptual Parsing**  
Zhiheng Li, Wenxuan Bao, Jiayang Zheng, Chenliang Xu  
Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR 2020**)

## Journal

- [8] **Privacy-Preserving Graph Machine Learning from Data to Computation: A Survey**  
Dongqi Fu\*, Wenxuan Bao\*, Ross Maciejewski, Hanghang Tong, Jingrui He  
ACM SIGKDD Explorations Newsletter, Volume 25, Issue 1

## Preprint

- [9] **AdaRC: Mitigating Graph Structure Shift during Test-Time**  
Wenxuan Bao, Zhichen Zeng, Zhining Liu, Hanghang Tong, Jingrui He
- [10] **Ask, and It Shall Be Given: Turing Completeness of Prompting**  
Ruizhong Qiu, Zhe Xu, Wenxuan Bao, Hanghang Tong
- [11] **Understanding the Effect of Data Augmentation on Knowledge Distillation**  
Ziqi Wang, Chi Han, Wenxuan Bao, Heng Ji

## Tutorial

- [12] **Learning from Non-IID Data: Centralized vs. Federated Learning**  
Jun Wu, Wenxuan Bao, Jingrui He  
Proceedings of the 32nd International Joint Conference on Artificial Intelligence (**IJCAI 2023**)
- [13] **Learning from Non-IID Data: Centralized vs. Federated Learning**  
Jun Wu, Wenxuan Bao, Jingrui He  
2022 IEEE International Conference on Big Data (**IEEE BigData 2022**)

## RESEARCH EXPERIENCE

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|---|--|
| <p><b>University of Illinois Urbana-Champaign</b><br/> <i>Research Assistant</i> (advisor: Prof. Jingrui He)</p> <ul style="list-style-type: none"> <li>· Thesis: Heterogeneous machine learning with decentralized data</li> </ul> | <p><b>Champaign, IL, United States</b><br/> <i>Jan 2021 - Present</i></p>  |
| <p><b>University of Rochester</b><br/> <i>Research Intern</i> (advisor: Prof. Chenliang Xu)</p> <ul style="list-style-type: none"> <li>· Project: Deep grouping model for unified perceptual parsing</li> </ul>                     | <p><b>Rochester, NY, United States</b><br/> <i>Jul 2019 - Dec 2019</i></p> |
| <p><b>Tsinghua University</b><br/> <i>Research Assistant</i> (advisor: Prof. Hua Xu)</p> <ul style="list-style-type: none"> <li>· Project: Multimodal sentiment analysis</li> </ul>   | <p><b>Beijing, China</b><br/> <i>Jul 2018 - Jun 2019</i></p>               |

## TEACHING EXPERIENCE

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| <p><b>University of Illinois Urbana-Champaign</b><br/> <i>Teaching Assistant</i> of CS 412: Introduction to Data Mining (instructor: Prof. Hanghang Tong)<br/> <i>Teaching Assistant</i> of IS 577: Data Mining (instructor: Prof. Jingrui He)</p> | <p><b>Champaign, IL, United States</b><br/> <i>Jan 2023 - May 2023</i><br/> <i>Aug 2024 - Dec 2024</i></p> |
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## SELECTED AWARDS

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- NeurIPS 2023 Scholar Award *2023*
- ICML 2023 Grant Award *2023*
- IEEE BigData Tutorial Honorarium *2022*
- Summa Cum Laude, Tsinghua University (top 2%) *2020*
- Outstanding Graduates in Beijing (top 5%) *2020*
- National Scholarship (top 2%) *2017 and 2019*

## SERVICES

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- Program committees of top-tier conferences: NeurIPS (2023, 2024), ICML (2024), ICLR (2024, 2025), CVPR (2024, 2025), AAAI (2024, 2025), AISTATS (2025), KDD (2021), CIKM (2021), BigData (2023), DSAA (2024), ICASSP (2025)
- Reviewers of top-tier journals: TKDD, TPAMI
- Student volunteer of ICML 2023

## SKILLS

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- Languages: English (fluent), Chinese (native)
- Programming languages: Python, C/C++, R, MATLAB, SQL, Shell, Verilog
- Machine learning packages: PyTorch, PyG, TensorFlow, scikit-learn
- Data science packages: NumPy, SciPy, pandas, matplotlib, seaborn
- Tools: MapReduce, Git, Markdown, L<sup>A</sup>T<sub>E</sub>X
- Miscellaneous: I play bass guitar in student bands and sing baritone in Acapella groups