

Yanzhi Wang

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Research Profile

My research focuses on energy-system optimization and data-centric AI, with an emphasis on data valuation and decision-making under uncertainty. I develop methods that use task performance to guide data selection and model training, with applications to energy and other complex systems.

Education and Research Training

Peking University School of Advanced Manufacturing and Robotics Ph.D. in Industrial and Systems Engineering Advisors: Prof. Jie Song & Prof. Jianxiao Wang	2022–June 2027 (expected)
Princeton University Visiting Student Research Collaborator (VSRC) Host: Prof. H. Vincent Poor	2025–2026
Peking University College of Engineering Bachelor’s degree in Theoretical and Applied Mechanics	2018–2022
Peking University National School of Development Bachelor’s degree in Economics	2019–2022

Selected Publications

Working Papers

- Yanzhi Wang**, Jianxiao Wang, Yaqin Hu, Jie Song, and Xiaofei Zhao. AI-Powered Data Valuation for Robust Financial Modelling. *Major revision at Management Science*.
- Yanzhi Wang**, Su Wang, Jianxiao Wang, H. Vincent Poor, and Jie Song. Data-Value Consensus in Federated Learning. *Manuscript in preparation*.

Journal Articles

- Yanzhi Wang**, Jianxiao Wang, Xi Chen, Yishen Wang, and Jie Song (2026). Feature selection for battery lifetime prediction using explainable machine learning. *IEEE Transactions on Industry Applications*, 62(2), 1843–1852.
<https://doi.org/10.1109/TIA.2025.3618235>
- Yanzhi Wang**, Jianxiao Wang, and Jie Song (2025). Data-centric optimization: An end-to-end strategy for power systems. *Engineering*. Advance online publication.
<https://doi.org/10.1016/j.eng.2025.09.028>
- Yanzhi Wang**, Jianxiao Wang, Haoran Zhang, and Jie Song (2025). Bridging prediction and decision: Advances and challenges in data-driven optimization. *Nexus*, 2(1), 100057.
<https://doi.org/10.1016/j.nexs.2025.100057>
- Yanzhi Wang**, Jianxiao Wang, and Jie Song (2025). Data purification for improved power dispatch against renewable uncertainty. *IEEE Transactions on Industrial Informatics*, 21(6), 4703–4712.
<https://doi.org/10.1109/TII.2025.3545092>

5. **Yanzhi Wang** and Jie Song (2025). Dissecting renewable uncertainty via deconstructive analysis-based data valuation. *IEEE Transactions on Industry Applications*, 61(1), 1626–1635.
<https://doi.org/10.1109/TIA.2024.3384130>

6. **Yanzhi Wang**, Jianxiao Wang, Feng Gao, and Jie Song (2024). Unveiling value patterns via deep reinforcement learning in heterogeneous data analytics. *Patterns*, 5(5), 100965. **Cover article, May 2024.**
<https://doi.org/10.1016/j.patter.2024.100965>

Conference Papers

1. **Yanzhi Wang**, Jianxiao Wang, and Jie Song (2024). Feature valuation toward improved state estimation for automotive lithium-ion battery. In *2024 IEEE Industry Applications Society Annual Meeting (IAS)*, pp. 1–6.
<https://doi.org/10.1109/IAS55788.2024.11023788>

2. **Yanzhi Wang**, Yue Zhao, Jie Song, and Hongju Liu (2022). What drives patients to choose a physician online? A study based on tree models and SHAP values. In *2022 IEEE 18th International Conference on Automation Science and Engineering (CASE)*, pp. 1676–1683.
<https://doi.org/10.1109/CASE49997.2022.9926467>

Invited Talks

Data-Centric Optimization in AI-Driven Complex Systems
Joint Workshop on 6G Wireless Communications
Princeton University, Princeton, NJ 2026

Teaching Experience

Teaching Assistant, Operations Research Fall 2024
Peking University

Honors and Awards

National Scholarship 2024, 2025, 2026

Presidential Scholarship, Peking University 2025

Youth Talent Support Program for Doctoral Students 2024
China Association for Science and Technology

BHP–PKU Carbon and Climate Wei-Ming PhD Scholars Program 2024
One of 13 recipients at Peking University.

Academic Rising Star 2024
One of 5 recipients in the College of Engineering, Peking University

Outstanding Undergraduate Research Award 2021
College of Engineering, Peking University