

# Zhenyi Wang

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## RESEARCH INTERESTS

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Data Analytics in Demand Response, Trustworthy AI in Power Systems, and Smart Grid Security

## EDUCATION

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### University of Macau

*Ph.D. Student in Electrical and Computer Engineering, Supervisor: Prof. Hongcai Zhang*

Aug. 2021 – Present

Macao SAR, China

### Sichuan University

*B.E. in Cybersecurity (GPA: 3.71/4.0), Supervisor: Prof. Beibei Li*

Sep. 2017 – Jun. 2021

Chengdu, China

## PUBLICATIONS

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### Journal Papers (with in press)

- [1] **Zhenyi Wang**, and Hongcai Zhang, “Improving Model Generalization for Short-Term Customer Load Forecasting with Causal Inference,” **IEEE Transactions on Smart Grid** (Under Review).
- [2] **Zhenyi Wang**, and Hongcai Zhang, “Customized Load Profiles Synthesis for Electricity Customers Based on Conditional Diffusion Models,” **IEEE Transactions on Smart Grid** (Early Access).
- [3] **Zhenyi Wang**, and Hongcai Zhang, “Customer Baseline Load Estimation for Virtual Power Plants in Demand Response: An Attention Mechanism-Based Generative Adversarial Networks Approach,” **Applied Energy**, vol. 357, p. 122544, 2024.
- [4] **Zhenyi Wang**, Peipei Yu, and Hongcai Zhang, “Privacy-Preserving Regulation Capacity Evaluation for HVAC Systems in Heterogeneous Buildings Based on Federated Learning and Transfer Learning,” **IEEE Transactions on Smart Grid**, vol. 14, no. 5, pp. 3535–3549, 2023.
- [5] Yiding Wang, **Zhenyi Wang**, Chenghao Li, Yilin Zhang, and Haizhou Wang, “Online Social Network Individual Depression Detection using A Multitask Heterogenous Modality Fusion Approach,” **Information Sciences**, vol. 609, pp. 727-749, 2022.

### Conference Papers

- [1] **Zhenyi Wang**, Hongcai Zhang, Baorong Zhou, Wenmeng Zhao, and Tian Mao, “When Pre-Training Model Meets Smart Meter Data Applications: A Preliminary Trial of General Way,” to appear in *2024 IEEE Power & Energy Society General Meeting (2024 IEEE PESGM)*, 2024.
- [2] **Zhenyi Wang**, and Hongcai Zhang, “Consumer Baseline Load Estimation in Demand Response: A Generative Adversarial Networks Approach,” in *the 6th IEEE Conference on Energy Internet and Energy System Integration (EI2 2022)*, pp. 1723–1728, 2022. (**Best Paper Award**)
- [3] Yiding Wang, **Zhenyi Wang**, Chenghao Li, Yilin Zhang, and Haizhou Wang, “A Multimodal Feature Fusion-Based Method for Individual Depression Detection on Sina Weibo,” in *2020 IEEE 39th International Performance Computing and Communications Conference (IPCCC)*, pp. 1-8, 2020.

## EXPERIENCE

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### Research Intern

*Guangdong Grid Co, China Southern Power Grid*

Mar. 2022 – May 2022,

*Guangzhou, China*

- Participated as a key member in the project about capacity evaluation in incentive-based demand response.

### Research Assistant

*Zhuhai UM Science and Technology Research Institute*

Mar. 2021 – Jun. 2021,

*Zhuhai, China*

- Participated in the project about offshore wind power, responsible for data processing and modeling.

## PATENT

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- [1] Peipei Yu, **Zhenyi Wang**, Hongxun Hui. Power Output Prediction Method, Device, Electronic Device and Storage Medium. *CN202210236289.1*.

## SERVICES

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### Journal Reviewer

- IEEE Transactions on Industrial Informatics
- IEEE Transactions on Smart Grid
- IEEE Transactions on Power Systems
- IEEE Transactions on Dependable and Secure Computing
- Journal of Modern Power Systems and Clean Energy
- Applied Soft Computing
- IET Smart Grid
- Sustainable Energy Technologies and Assessments
- Security and Communication Networks

### Conference Reviewer

- IEEE Power & Energy Society General Meeting (PESGM)
- IEEE Global Communications Conference (GLOBECOM)

## HONORS AND AWARDS

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- **Best Paper Award** at the *6th IEEE Conference on Energy Internet and Energy System Integration* 2022
- **First Prize and Best Innovation Award** at the *2021 Contest of AI Application in Power Dispatching* 2021
- **Third-Class Prize** in *Sichuan University Annual Scholarship* 2019

## SKILLS

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**Programming:** C/C++, Python, Shell, Latex

**Tool Kits:** Git, Bash/Zsh, Docker, MySQL/MongoDB

**Languages:** Chinese (native), English (fluent)

## REFERENCES

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### Hongcai Zhang (Supervisor at University of Macau)

- Assistant Professor with the State Key Laboratory of Internet of Things for Smart City and Department of Electrical and Computer Engineering at University of Macau
- Email: hc Zhang@um.edu.mo

### Beibei Li (Bachelor Supervisor at Sichuan University)

- Professor with the School of Cyber Science and Engineering at Sichuan University
- Email: libeibei@scu.edu.cn

### Weiqi Hua (Collaborator at University of Birmingham)

- Assistant Professor in Energy Systems with the Department of Electronic, Electrical and Systems Engineering at the University of Birmingham
- Email: w.hua@bham.ac.uk