

Xiaopei Wang

PhD Candidate, Universiti Malaya · Co-founder and Chief Engineer, Qingrun Hengjie

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5	6	32	11	13	7
Papers	Submitted / under review	Selected projects	Patents	Registered software copyrights	Public datasets

Research interests

Research on **hydrogen and fuel cells and new energy vehicle powertrains**: intelligent testing and physical–virtual validation, energy management, hydrogen value-chain data and carbon accounting. Combine real-time simulation, HIL testing and data reliability assessment for system design and engineering optimization.

Education

2023.09–Present	Universiti Malaya PhD Candidate · Electrical Power and Energy Supervisor: Associate Professor Md. Hasanuzzaman
2018–2021	Inner Mongolia University of Science and Technology MEng · Control Engineering Supervisor: Professor Zhonghu Li
2013–2017	Chengdu University of Technology Bachelor's degree · Radiation Protection and Nuclear Safety

Professional experience

2023–Present	Qingrun Hengjie Co-founder and Chief Engineer Transfer university research outcomes to industry and commercialize technologies; lead technical roadmap planning and product R&D.
2023–2024	Huairou National Laboratory R&D Engineer Contributed to control software for a megawatt-scale fuel cell test bench and related intellectual property.
2018.02–2023.02	Tsinghua University · New Energy Testing Group R&D Engineer New energy vehicle and fuel cell testing R&D; contributed to the Beijing Winter Olympics hydrogen value-chain data platform.

Academic visits

2026.03–Present	Hanoi University of Science and Technology Visiting Researcher CTI Lab4EV; energy management control; host supervisor: Võ Duy Thành.
2025.04–2026.04	The University of Tokyo Visiting PhD Student Energy system modelling and conversion analysis; host supervisor: Muhammad Aziz.
2025.02–2025.04	National Taiwan University Visiting PhD Student Carbon accounting; host supervisor: I-Yun Lisa Hsieh.

Selected projects

National Key R&D Program · Hydrogen Mobility for the Beijing Winter Olympics	2020–2023 · Core Engineer
Designed and developed the hydrogen value-chain data platform, operational analytics and models; produced 7 public datasets.	
80 kW component-in-the-loop fuel cell stack test bench	2022 · Project Lead
Led overall system design, physical–virtual testing architecture and core control-system R&D.	
Hybrid powertrain test benches · 22 units	2024 · Project Lead
Led system design, supervisory-control architecture and core software R&D for 22 benches, delivered as engineered products.	
New energy vehicle powertrain testing software	2019–2020 · Project Lead
Led software architecture and R&D of core supervisory-control and automated-testing functions.	

Selected publications

5 papers: 3 journal articles and 2 international conference papers; 6 additional manuscripts submitted or under review: 5 journal manuscripts and 1 conference paper.

* Corresponding author.

Journal articles

- 1. **CG-DQI: Coupling-Gated Data Quality Index Sample Weighting for Electric Dynamometer Test-Bench Window Prediction**
Chang, H., **Wang, X.***, et al. *Applied Sciences*, 2026, 16(17): 8395.
DOI: 10.3390/app16178395 · **JCR Q2** · **Scopus Q1**
- 2. **PSO-Based Accuracy Optimization of Parallel Mass Flow Controllers in Multi-Component Gas Mixing Systems**
Chang, H., **Wang, X.***, et al. *Processes*, 2026, 14(14): 2344.
DOI: 10.3390/pr14142344 · **JCR Q3** · **Scopus Q2**
- 3. **Hardware-in-the-Loop Test of Motor Controller Based on FPGA**
Zhang, L., Li, Z., **Wang, X.**, Hua, Y. *Science Technology and Engineering*, 2021, 21(13): 5345–5352.

International conference papers

- 4. **Development of a Testing Platform for Fuel Cell Thermal Management Systems**
Do Thi, A. N., **Wang, X.**, et al. *GSETS 2025*, pp. 135–145.
ISBN: 978-604-76-3087-5
- 5. **Stochastic Optimal Scheduling of Electric-Thermal-Hydrogen Integrated Energy System Based on Seagull Optimization Algorithm**
Jin, Z., **Wang, X.**, et al. *IC2ECS 2022*, pp. 676–680.
DOI: 10.1109/IC2ECS57645.2022.10087931

Patents and software

11 patents (including pending applications): 7 invention and 4 utility model patents, all among the first three inventors; **13 registered software copyrights**, all among the first three contributors.

- **Driving-range estimation method, apparatus, device and medium for fuel cell vehicles** · CN115453394B
- **Adaptive vehicle torque control method, system and device** · CN120716479A
- **Utility models:** Control system supporting dynamic algorithm switching; four-channel synchronous motor-signal acquisition device.
- **Selected software:** Fuel Cell Test Bench Supervisory Control System (2023SR0258299); Fuel Cell Model Library (2024SR0302142); Test Supervisory Control Software (2025SR0697142).

Public datasets

7 public hydrogen value-chain datasets, all as first or second author, covering production, storage and transport, refuelling, vehicle operation and model outputs. Selected datasets:

Fault diagnosis and safety warning model outputs	CSTR: 16666.11.nbsdc.vU5IDDvR
Fuel cell performance analysis model outputs	CSTR: 16666.11.nbsdc.QdrcE0I3
Hydrogen fuel cell vehicle operating data	CSTR: 16666.11.nbsdc.yxc5XLas

Other academic contributions

Textbook: Contributed to adapting Chapter 11, “Hybrid Powertrain Test Benches”, in *Powertrain Testing Technology* (2nd ed.), Tsinghua University Press, 2023.

3 conference abstracts (Accept): IOCIV 2026, GREENIE 2025 and WFCC 2026.

Professional Memberships

- Member, China Society of Automotive Engineers (China SAE) | 2026–Present
- Member, China Electrotechnical Society (CES) | 2026–Present
- Member, Chinese Society for Electrical Engineering (CSEE) | 2026–Present