

Xiao Du, Ph.D. Student

Room 836, Information Building
School of Big Data & Software Engineering, Chongqing University
Shapingba, Chongqing, China
(M) +86 18223091402 (E) duxiao@cqu.edu.cn
(W) <http://duxiao.xyz>



Education

- Sep'23-Present **Ph.D. (Software Engineering)** Chongqing University (CQU).
Thesis title: *Deep Reinforcement Learning-based Energy Management Techniques for Smart Homes*. (Supervised by Dr. Fengji Luo (The University of Sydney) and Prof. Junhao Wen (CQU))
- Sep'20-Apr'23 **M.E. (Energy and Power Engineering)** Nanjing University of Aeronautics and Astronautics (NUAA).
Thesis title: *Research on Sensor Fault Diagnosis and Remaining Useful Life Prediction of Aero-Engine*. (Supervised by Prof. Jiqiang Wang (CAS) and Prof. Haibo Zhang (NUAA)).
- Sep'15-Jun'19 **B.E. (Renewable Energy Science and Engineering)** Chongqing University (CQU).
Thesis title: *Dynamic characteristics of DSG collectors for concentrating solar thermal power generation systems*.

Research Publications

Journal Articles

- 1 X. Du, F. Luo, J. Hu, W. Zhou, and J. Wen, "Adaptive home energy management to self-motivated user preferences via iterative llm-augmented reinforcement learning," *Applied Energy*, 2026, (Major Revision).
- 2 X. Du, F. Luo, J. Hu, W. Zhou, and J. Wen, "Causally aligned multi-agent reinforcement learning for coordinated control of heterogeneous home energy devices," *IEEE Internet of Things Journal*, 2026, (Accepted).
- 3 X. Du, F. Luo, J. Hu, W. Zhou, and J. Wen, "Generalizable zero-shot home energy management via representation learning and behavioral cloning," *Applied Soft Computing Journal*, 2026, (Minor Revision).
- 4 X. Du, F. Luo, J. Lan, J. Liao, W. Zhou, and J. Wen, "Accelerating drl policy deployment for home energy management via conditional policy parameter diffusion," *IEEE Transactions on Industrial Informatics*, 2026, (Under Review).
- 5 X. Du, F. Luo, J. Lan, W. Zhou, and J. Wen, "Contrastive preference learning from user overrides for personalized home energy management," *IEEE Transactions on Smart Grid*, 2026, (Major Revision).
- 6 X. Du, F. Luo, J. Liao, W. Zhou, and J. Wen, "Learning when to control: Adaptive multi-timescale home energy management with action decomposition," *Journal of Building Engineering*, 2026, (Under Review).
- 7 J. Hu, X. Du, F. Luo, J. Liao, and J. Wen, "Gated rotary-enhanced linear attention for long-term sequential recommendation," *Expert Systems with Applications*, 2026, (Under Review).
- 8 J. Chen, F. Yu, X. Du, X. Chen, J. W. Wang, and X. Sun, "A multi energy management control schedule design method for parallel hybrid electric turbofan engine under different flight conditions," *Journal of Aerospace Engineering*, vol. 48, no. 5, p. 08 025 009, 2025.
- 9 X. Du, J. Chen, J. Wang, H. Zhang, and J. Wen, "Fusion-based dual-task architecture for predicting the remaining useful life of an aeroengine," *Journal of Aerospace Engineering*, vol. 38, no. 3, p. 04 025 004, 2025.

- 10 R. An, J. Chen, **X. Du**, H. Zhang, and J. Wang, "A novel method of vibration control for internal and external cases of aero-engines based on geometric design method.," *Journal of Nanjing University of Aeronautics & Astronautics*, vol. 55, no. 4, 2023.
- 11 **X. Du**, J. Chen, H. Zhang, and J. Wang, "Fault detection of aero-engine sensor based on inception-cnn," *Aerospace*, vol. 9, no. 5, p. 236, 2022.

Conference Proceedings

- 1 **X. Du**, X. Wang, and J. Wang, "Nonlinear control design of aero-engine based on ngmv," in *Proceedings of 2021 Chinese Intelligent Systems Conference: Volume I*, Springer, 2022, pp. 174–182.

Experience

Research & Projects

- Jan'21-Dec'24 ■ *Research on Service Recommendation of Trusted Sharing and Heterogeneous Data Fusion in Mobile Crowd Sensing Environment*, National Natural Science Foundation of China, 570,000 RMB. (Participant)
- *Research on Abnormal Content Detection of Public Emergencies Based on Cross-platform Data Fusion*, National Natural Science Foundation of China, 480,000 RMB. (Participant)
- Feb'21-Apr'23 ■ *Aero-engine Prognostic and Health Management (PHM) Simulation Platform*, NUAA, 99000 RMB. (Investigator)

Student Projects



- Sep'20-Apr'21 ■ *Co-simulation and Nonlinear Controller Design of Aero-engine*, NUAA.
- Jan'19-May'20 ■ *Study on Dynamic Characteristics of DSG Collector of Concentrated Solar Thermal Power System*, CQU.
- Aug'17-Apr'19 ■ *Fully Automatic VOCs Purification System based on Plasma Catalytic Technology*, SRTP Program and Energy Conservation and Emission Reduction Competition, CQU.
- Feb'18-Jun'18 ■ *New Waste Oil Detection Tool*, "Shusheng Vanguard" Innovation and Entrepreneurship Competition, CQU.
- Aug'17-May'18 ■ *New Maintenance-free Water-saving Water Heater*, Energy Conservation and Emission Reduction Competition, CQU.

Awards and Achievements

- 2023 ■ **Outstanding Master's Graduate**, NUAA
- 2021-2023 ■ **Graduate Academic Scholarships (Class A)**, NUAA
- 2018 ■ **Second Prize in Energy Conservation and Emission Reduction Competition**, CQU
- 2017 ■ **Bronze Award of "Shusheng Vanguard" Innovation and Entrepreneurship Competition**, CQU
- **Outstanding Self-dependent and Self-motivated Individual**, Chongqing City
- 2016 ■ **Outstanding Innovative and Entrepreneurial Individual**, CQU
- 2015 ■ **Outstanding Student of Chongqing University**, CQU
- **Exemplary Member of the Association**, CQU

Service





Reviewer Service

- 2025  22nd International Conference on Principles of Knowledge Representation and Reasoning, Digital Signal Processing
- 2024  Chinese Journal of Aeronautics, Digital Signal Processing

Student Service

- Oct'24-Present  Student President in **Chongqing Student Association of China Computer Federation (CCF)**, Chongqing, China
- Nov'20-Aug'21  Volunteer in **International Conference on Applied Nonlinear Dynamics, Vibration, and Control (ICANDVC) 2021**, Zhuhai, Guangdong, China
- Aug'18  Volunteer in **Smart China Expo 2018**, Chongqing, China

Skills

- Languages  English, Mandarin Chinese (native).
- Coding  Python, Matlab/Simulink, C, HTML5, JavaScript, \LaTeX , ...
- Tools  Docker, Torch, Tensorflow, Django, PyQt, AppDesigner, Pandas, Numpy, ...
- Other  Office suite, Adobe Photoshop/Premiere/InDesign, ...