Haoxiang Lu

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Research Interests

AI/ML in Environmental Engneering.

Education

2024 – 2027 **University of Chinese Academy of Sciences** *(U.S. News Ranking: 69th)*
M.S. in Environmental Engineering, *GPA – 3.8/4.0* *Advisor: Prof. Zhi Qian*
Core Courses: **Data Analysis** in Environmental Engineering Practice, **Mathematical Models** of Environmental Engineering and MATLAB Application, Pattern Recognition and **Machine Learning**.

2020 – 2024 **East China University of Science and Technology** *(U.S. News Ranking: 577th)*
B.S. in Environmental Engineering, *GPA – 3.4/4.0* *Advisor: Prof. Juying Lei*
Outstanding Engineer Education and Training Program
Thesis: *Preparation of* Ti_3C_2 *MXene-based Composites for Photocatalytic* CO_2 *Reduction*.

Research Publications

Professional Experience

Research

Jul. 2023 - Sep. 2023 **Tongji Architecture Design (Group) Co., Ltd.**
Research Intern *Advisor: Yuting Zhu*
Conducted comprehensive literature review on activated carbon regeneration in water treatment using bibliometric software (*VOSviewer* and *CiteSpace*). Analyzed research trends, collaboration networks, and emerging technologies in the field.

Aug. 2024 - present **Weiqiao National Higher Technology Research Institute**
Research Assistant
Designed fuzzy predictive control systems for hypergravity desulfurization reactors. Implemented improved Adaptive Neuro-Fuzzy Inference Systems (ANFIS) to address multivariable coupling control prediction challenges in rotating packed bed (RPB) reactors. Applied particle swarm optimization for multi-objective reactor performance enhancement.

Industry

Aug. 2024 - Dec. 2024 **Shandong Weiqiao Pioneering Group Company Limited**
Process Engineer
Led implementation of hypergravity desulfurization reactors at Zouping Alumina Plant No. 3. Designed pipeline configurations and instrumentation layout for experimental apparatus with 3000 m^3/h gas processing capacity. Achieved 99% H_2S absorption efficiency with system demonstrating stable operation for over one year.

Professional Experience (continued)

Teaching Assistant

Sep. 2025 - present **University of Chinese Academy of Sciences**
Teaching Assistant in *Mathematical Models of Environmental Engineering and MATLAB Application*.

Skills

Coding	**Python**, MATLAB, SQL, LaTeX.
AI/ML	**Pytorch**, Scikit-Learn, Scikit-Fuzzy, LLMs, XGBoost, CatBoost, Hyperopt, ...
Experiment	XRD, SEM, TEM, FTIR, Raman, XPS, UV-vis, EIS, EBS, TPC, EDS.
Auxiliary	Research, Teaching, Presentation, Technical Writing.

Honors and Recognition

Awards and Honors

2024 **Gold Medal**, 49th International Exhibition of Inventions Geneva, for "High Gravity Selective Desulfurization Technology."

Scholarships

2024 – 2026 **Graduate Academic Scholarship**, University of Chinese Academy of Sciences.

2023 **Outstanding Undergraduate Scholarship**, University of Chinese Academy of Sciences.

2020 – 2023 **Merit-based Scholarship** (Third Class), East China University of Science and Technology.