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Academic Background

- **University of Warwick, Ph.D. Candidate** — United Kingdom
  School of Engineering, Supervised by Prof.Sai Gu(FREng) — *Mar 2023 – Present*
- **University of Birmingham, Ph.D. Candidate** — United Kingdom
  School of Engineering, Jointly trained by the School of Computer Science — *Sept 2021 – Mar 2023*
- **University of Nottingham, M.Sc** — United Kingdom
  Sustainable Energy Engineering,Vice President of Engineering Student Union — *Sept 2020 – Sept 2021*
- **Southeast University, B.Eng** — Jiangsu , China
  Energy and Power Engineering, 2019 Outstanding Graduates — *Sept 2015 – Jun 2019*

Working Experience

- **University of Birmingham Electrochemical Engineering Group** — Birmingham , United Kingdom
  Ph.D. Candidate , Full-time — *Sept 2021 - Jan 2023*
  - **Project**: Data development and analysis of electrochemistry engineering
  - **Lead Roles**: Manage a team of 14 people to collect the data from the proton exchange membrane water electrolyser and further analysis. Apply the data-driven, data mining model to accelerate the development of electrochemical engineering.
  - **Data Analysis**: Apply PCA Analysis, normalize and standardize the database, and use cluster algorithm to find the underlying potential physical relationship. Draw the heat map about the correlations between each input parameter and output parameter. Apply Enhance learning to the current database and make future analysis.
  - **Machine Learning**: The catalyst solution formula is optimized using a deep learning approach relied on a 0-D, semi-empirical neural network model of proton exchange membrane water electrolysis polarization behaviour and a data analysis framework.High-throughput screening of materials using catalyst eigenvalue sites to predict the best catalysts for hydrogen evolution reaction.The creator of the related GitHub community.
  - **Output**: A well developed machine learning algorithm and data analysis model to interpret,guide and predict the electrochemical experiment design.
  - **Referee**: Dr.Leandro L. Minku,Associate Professor in University of Birmingham,School of Computer Science
    Dr.Shangfeng Du,Associate Professor in University of Birmingham, School of Chemical Engineering
- **Global Energy Interconnection Research Institute** — Birmingham , United Kingdom
  Energy Project Researcher , Full-time — *Oct 2021 - Mar 2023*
  - **Project**: Electrochemical energy storage project of Global Energy Internet Research Institute and University of Birmingham
  - **Project Description**: Techo-economic analysis of the water electrolysis and fuel cell system to evaluate the potential of hydrogen as an energy carrier; Using optimized ultrasonic spraying method based on genetic algorithm in replace of the traditional laboratory hand spraying approach to deposit the catalyst solution on the electrode. The targeted goal is to achieve the electrolysis voltage of less than 1.8V at the current density up to 2 A/cm^2 at 3.5 MPa with H_2 permeation below 1% which will surpass current state-of-the-art Faraday efficiency.
  - **Planned Output**: Several scientific publications and patents.
  - **Referee**: Dr.Geng Qiao,Senior Research Engineer in Global Energy Interconnection Research Institue
- **Huawei Nuremberg Research Center** — Nuremberg , German
  Energy Project Manager , Part-time — *Aug 2022 - Feb 2023*
  - **Project**: Electrochemistry modeling simulation and energy system modeling
  - **Project Description**: Assist the head of Huawei Nuremberg Research Center to search for the representative energy system modelling expert in Europe.
  - **System Modeling**: Electrochemistry energy storage and modeling, simulation of hydrogen integration into the main network, and multi-objective linear optimization.Political economy analysis of the potential of hydrogen energy.
  - **Planned Output**: Report: Hydrogen Decarbonisation Pathways for Europe's Energy Sector.
  - **Referee**: Mr.Wenbo Sun,Director of Huawei Nuremberg Research Center

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Research Experience

Supervised Learning Approaches for Metal Alloy Discovery Nottingham, United Kingdom

Master Project at University of Nottingham *Apr 2021 - Sept 2021*

- **Project**: Synthesis prediction of alloys with hydrogen storage potential using machine learning approaches.
- **Project Description**: Three different machine learning algorithms including random forest,gradient boosting tree and support vector machine have been used to achieve high-throughput screening of 6,480 possible prediction results which could have the potential to store hydrogen.Using k-fold cross-validation to prove the feasibility and the average precision in the test-set achieves 92.5% while in the precision set it is 71.1%.
- **Output**: Master Degree in Engineering.

Thermal Management System in Water Treatment Jiangsu , China

Bachelor Project at Southeast University *Sept 2018 - Jun 2019*

- **Project**: Finite Element Analysis of Heat-Mass Relationship Changes During Spray Evaporation.
- **Article Originality**: It introduces the spray evaporation technology that is widely used in the field of seawater desalination. The waste heat from the factory is used to heat the spray and evaporate to achieve desulfurization.The overall evaporation rate is about 53% when the temperature of wastewater and flue gas is 293 K and 363 K.Using CFD 15.0 to finite element analysis of the spraying method and ASPEN Plus to system analysis, and through the means of orthogonal test, the correlation between the key parameters is analyzed and fitted to graphs.
- **Output**: Fluent-based spray evaporation model at nozzle.
  System design of the installed flue gas waste water treatment device.
  Outstanding Graduation Thesis of School of Energy , Southeast University.

Intern Experience

- **Warwick Manufacturing Group(WMG),University of Warwick** Coventry , United Kingdom

  Research Assistant *Apr 2023 - July 2023*

  - **Project**: Research Assistant for Heart Rate Variability App Development Using Kivy
  - **Data Analysis**: To provide a functional Python-based implementation of an electrocardiogram (ECG) analysis tool inspired by existing models, load and visualize ECG signals in static (stored in online databases) form,To carry out basic long-term and short-term time domain heart rate variability (HRV) analysis from ECG signals and display an output to user,and to adapt the mobile app for clinical use and telemonitoring applications in the long-term.
  - **Output**: A developed kivy-based APP for ECG signal analyze.

- **Intern Management Trainees in XPENG Mentors, Europe** Amsterdam , Netherlands

  Management Trainee of Market Analysis *Apr 2021 - July 2021*

  - **Project**: Global charging pile business analysis of XPeng Intern Management Trainee Program.
  - **Business Analysis**: Collect and data analyse of the electrical charging pile stations construction plan in the Netherlands; Assist project managers to promote the development of back-end charging projects; Support European regional front-end business promotion and local projects, and coordinate the process and approval of the middle and back-end headquarters; Support the middle office to sort out business processes; Assist in handling technical issues of customer service.
  - **Output**: Feasibility analysis report of building XPeng supercharging station in Europe.

Extracurricular Achievements

- **Student Union**: Vice President of Student Union, School of Energy , Southeast University;
  President of Postgraduate Engineering Union, University of Nottingham.
- **JESS Summer School**: Participate in Joint European Summer School on Fuel Cell, Electrolyser and Battery Technology and get the degree certification.
- **CSCST-SCI Conference**: Organize, participate and present in the 29th CSCST-SCI conference, the original work named "Data-driven Model of Membrane Electrode Assembly Optimization for Proton Exchange Membrane Water Electrolyser by Machine Learning" has been presented as a poster.
- **National Competition**: Second Price in 2018 “Challenge Cup” Entrepreneurship Competition as team leader;
  Third Price in 11th Energy Conservation and Emission Reduction Competition as team leader.
- **International Competition**: Second Price in 2018 Schneider “Go Green” Competition as team leader.
- **Other Awards**: More than 20 Provincial and University-level competition awards;
  2019 Outstanding Graduate in Southeast University.