SUN Songling, Scott

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EDUCATION

City University of Hong Kong Sep 2021 – Jun 2025

- BEng in Energy Science and Engineering - cGPA: 3.90/4.30 [Major GPA: 4.18/4.30] Hong Kong, China
- Attained Great Eagle Group Scholarship (HKD$ 50,000); CityU HK Scholarship (HKD$ 60,000); Chi-Li Pao Foundation Scholarships for Academic Outstanding Students (HKD$ 25,000); The Cheng Foundation Scholarship (HKD$ 24,000); School of Energy and Environment Student Exchange Award (HKD$ 19,000); HK Electric Scholarship for Exemplary SEE Attributes (HKD$ 15,000)
- Awarded Dean's List (4 consecutive semesters, 2022-2024) – Top 2 / 62 students; enrolled in eSTAR stream (Top 5 / 62 students) and CityU HK Tiger Elite Programme
- Relevant coursework: Mathematical Methods for Engineering (A+), Environmental Engineering (A+), Electromagnetic Principles (A+), Engineering Thermofluids (A+), Building Energy Efficiency (A+), Data Analysis (A+), & Computer Programming (A+), Project Management (A+)

University of Leeds Jan 2024 – Jun 2024

- Recipient of the Academic Exchange Award Programme Scholarship Leeds, UK
- Relevant coursework: First Honor in Algorithm & Data Structure; Database Management

RESEARCH EXPERIENCE

Applications of Differential Evolution Algorithms on PI Controllers Tuning of a Dual PMSMs Model

Research Assistant, Electrical Energy and Power Technology (EEPT) Laboratory May 2023 - Jul 2023

Leader: *Prof. Liu Chunhua*

- Proposed a field-weakening model predictive algorithm for a five-leg inverter dual motor system equipped with a swarm intelligent algorithm to tune PI parameters
- Researched a single motor field-weakening control simulation model, and built and optimized a voltage PID feedback model for a five-leg inverter dual permanent magnet synchronous motor on MATLAB-Simulink, implementing field-weakening control and model predictive algorithm modules.
- Improved the traditional Differential Evolution Algorithm, allowing crossover and mutation coefficients to evolve over time, enhancing the efficiency of the algorithm's efficiency.
- Conducted load experiments in a laboratory environment, validating that field-weakening control and the improved Differential Evolution Algorithm can enhance the performance of the five-leg inverter dual motor system.

Daytime Passive Radiative Cooling Oct 2021-May 2023

Campus Internship Scheme Employee, Energy, Materials and Built Environmental Laboratory

Leader: *Prof. Edwin TSO*

- Helped with experiment procedures and performed data analysis.
- Performed characterizing using long-band spectrometers to compare the results of various methods.

WORK EXPERIENCE

Shenzhen HaiLei New Energy Co., Ltd. Jul 2024 - Aug 2024

Intern Assistant Engineer, R&D Department Testing Center Shenzhen, China

- Developed a simulation program for an Energy Management System (EMS) that connects photovoltaics, the power grid, Battery Management System (BMS), and Power Conversion System (PCS). The program, implemented on an embedded device running Linux, enables real-time computation and 485 communications.
- Gained hands-on experience in industrial battery assembly and inverter testing under the guidance of engineers, mastering basic schematic reading/writing skills, and testing standards.

- Improved the company's existing BMS communication program by introducing a mid-level machine and implementing a program on an embedded device that allows basic read/write operations with the battery BMS circuit board.
- Utilized Python to revamp the BMS interface, enhancing the software foundation for the project's new embedded control system and enabling potential development of advanced features like machine parallelism and offline data collection.

MTR Corporation Limited Jun 2023 - Aug 2023

Summer Intern, Infrastructure & Maintenance Department Hong Kong, China

- Researched patronage and energy consumption of the MTR railway system with NumPy and Matplotlib in Python
- Developed Python programs to mass extract data from Daily Chief Controller Summary of the past two years with 1 million records into Excel files and perform data analysis in 60 seconds
- Trained a specific big data model based on the extracted database to predict energy consumption with patronage, temperature, and other weather variables, with an accuracy of +90%

LEADERSHIP EXPERIENCE/OTHER ACHIEVEMENTS

CityU HK School of Energy and Environment Student Chapter – *Vice President* Aug 2022 – Aug 2024

- Coordinated the preparation, promotion, and decoration for a school barbeque night and annual dinner with 100+ SEE students involved respectively
- Established partnerships with O-park, Hong Kong Green Building Council, Hang Lung Properties, and Jane Goodall Institute Institute (Hong Kong), and liaised with 5+ sustainability company/infrastructure visits.

HKEW 2024 GBA Innovation Competition – *Team Member* Mar 2024

- Collaborated with a team of 10, including Students from the City University of Hong Kong and Zhongshan University to compete with wheeled robots with arms on sand
- Designed the structure of the sand fort in competition with BIM software
- The team won the 1st Runner-up

Save Energy Championship – *Team Member* Mar 2024

- Carried out machine learning in Python on the dataset of American family energy consumption by Carnegie Mellon University with Decision Tree and K-Means Clustering Methods
- Developed an application to forecast and analyze household electricity tariffs as the core component of the competition entries
- The team won Merit Hanson Award (Bronze Award)

ADDITIONAL INFORMATION

Languages: Native Chinese & Mandarin, Proficient English (IELTS: 8.0)

IT Skills: Microsoft Office (Word, Excel, Visio, PowerPoint), Adobe Lightroom, ANACONDA, Origin, MATLAB, Visual Studio, Autodesk Revit and Dynamo, Python, C++, SQLite3

Interests: Photography, video-shooting, swimming, hiking