Suwen JIN

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Portfolio: https://shizukuyu.com/

Education

University College Dublin — Dublin, Ireland
Master of Science, Computer Science (120 ECTS) — *Sep 2022 - Jan 2024*
GPA: 3.5/4.2

Xiamen University Tan Kah Kee College — Xiamen, China
Bachelor of Engineering, Environmental Science and Engineering — *Sep 2018 - Jun 2022*
GPA: 3.4/4.0 (Ranking: 18/192)

University of Nottingham Ningbo China — Ningbo, China
Summer School: Digital Future — *Jun 2023*

Skills Summary

Experiences in Computer Science with focus on data analysis, machine learning, and web development projects.

- **Selected key courses:** *Machine Learning with Python, Cloud Computing, Data Mining etc.*
- **Programming Languages:** *Python, Java, Javascript, NCL, Bash, R etc.*
- **Database Management:** *MySQL, PostgreSQL, Redis, MongoDB.*
- **Machine Learning:** *Scikit-learn, PyTorch, TensorFlow.*
- **Web Development:** *HTML, CSS, React, Django, Flask, Bootstrap.*

Solid basic knowledge on Environmental Science and Engineering. Laboratory experience with a focus on Water Treatment; Model simulation experience in Weather Forecast Downscaling.

- **Selected key courses:** *Environmental Monitoring, Environmental Statistics, Fundamentals of Environmental Engineering, Reading and Drawing of Architecture Charts etc.*
- **Experimental skills:** *GC-MS, HPLC-MS, UV-Vis.*

General research skills.

- **Software:** *Origin, Jupyter Notebook, MATLAB, Google Analytics.*
- **Design Tools:** *LaTeX, Figma, Adobe Illustrator, AutoCAD.*

Projects

Precipitation Nowcasting Using a Diffusion Model with Multimodal Data — Hong Kong, China
Hong Kong University of Science and Technology — *Mar 2025 - present*
Advisor: Prof. Xiaoming Shi and Dr. Yueya Wang

- Developed a diffusion model based on a U-Net with self-attention and ConvNeXt modules, trained in two phases (4-hour and 8-hour predictions) to minimize error accumulation and improve long-term forecasting accuracy.
- Combined FY-4A satellite infrared imagery with FuXi-predicted atmospheric variables (e.g., geopotential, specific humidity) to enhance physical interpretability, enabling high-fidelity 24-hour precipitation forecasts.

Developing a Regional Reanalysis System for High-Impact Weather Cases using the 4D-Var Data Assimilation Technique — Hong Kong, China
Hong Kong University of Science and Technology, Hong Kong Observatory — *Sep 2024 - present*
Advisor: Prof. Xiaoming Shi and Dr. Yueya Wang

- Conducted data preprocessing inducluding weather statation data, Sounding, Radar and Wind profiler into NetCDF/4DVar format which is suitable for WRF/WRFDA to process.
- Responsible for data visualization; developing a website to display the reanalysis data plots.

Traffic Prediction based on NYC Taxi Data using Machine Learning — Dublin, Ireland
University College Dublin — *Jun 2023 - Aug 2023*
Advisor: Prof. Gavin McArdle and Prof. Fatemeh Golpayegani

- Collected and preprocessed historical taxi data and weather data, optimizing data quality; Conducted feature engineering to extract multidimensional features like time, space, weather, and events as model inputs.
- Developed models using XGBoost and Random Forest to predict future taxi zone busyness level. Validated and optimized predictive model for New York City taxi zone congestion assessment.

Removal of NDMA from Water by UV-Advanced Oxidation Process Xiamen, China
Xiamen University Tan Kah Kee College *Jan 2021 - Apr 2022*
Advisor: Prof. Xiaosong Zha

- Effectively utilized UV/H_2O_2 and UV/PS to efficiently degrade N-nitrosodimethylamine (NDMA) in water; Optimized water treatment processes by adjusting parameters such as oxidant dosage, pH, dissolved oxygen etc.
- Conducted detailed analyses using High-Performance Liquid Chromatography (HPLC) to monitor and quantify reaction products.

Transformation of Chloride Ions in Electro-Oxidation Technology Shanghai, China
Fudan University, Tongji University *Jul 2021 - Sep 2021*
Advisor: Prof. Yan Liu and Ms. Chenxi Li

- Operated and maintained lab instruments(GC-MS,HPLC), analyzed pre-made Trichloromethane samples using mass spectrometry, and superimposed chromatograms of different samples to test the content changes.
- Made detailed observations and produced graphs based on the experimental findings.

Work Experience

Hong Kong University of Science and Technology, Hong Kong Observatory Hong Kong, China
Research Assistant *Sep 2024 - Present*

- Responsible for developing a regional downscaling system for high-impact weather events using WRFDA, enhancing prediction accuracy and reducing the resolution from 10km to 2km.

GDS Holdings Ltd. Shanghai, China
Large Language Model Intern *Jan 2024 - June 2024*

- Responsible for developing an interactive data center introduction system based on the RAG and fine-tuning instructions for Llama2.

Publications

Xiaosong Zha, **Suwen Jin**, Qian Zhao, Peinan Huang, et al. Research on the removal of NDMA from water using ultraviolet-based advanced oxidation technology [J]. *Chinese Journal of Water Treatment Technology*, **2022** (In Chinese)

XiaoSong Zha, Lin Zhang, YuanJie Weng, ZhiLiang Feng, **Suwen Jin**. Reductive Degradation of N-Nitrosodimethylamine in Water by Ultraviolet Advanced Reduction Processes[J]. *Chinese Journal of Applied Chemistry*, **2022** (In Chinese)

Awards

Certificate of Completion *2024*
Shanghai AI Laboratory - InternLM Pratical Camp
Excellent Student Scholarship (awarded to the top 10% of the grade) *2018, 2019, 2020, 2021*
Xiamen University Tan Kah Kee College
Group Leader Award, Provincial level *2020*
National College Students' Innovative Entrepreneurial Training Plan Program
First Prize, Group leader *2019*
University Student Social Practice and Science Contest on Energy Saving and Emission Reduction

Personal detail

Nationnality: Chinese
Gender: Female
Language: Chinese(Native), English(C1), Japanese(N2), German(Beginner)
Countries of residence: China, Ireland
Hobbies: Skateboarding, Playing the Guitar, Visiting Museums, and Art Exhibitions