

Suei-Wen Chen

Phone: +971 50 852 9182 • Email: sueiwen.chen@nyu.edu • LinkedIn • Github • Website

RESEARCH INTERESTS

I am broadly interested in the mathematical and probabilistic aspects of machine learning and data science, and more specifically the application of probability theory in providing theoretical guarantees for reinforcement learning and language models.

EDUCATION

New York University Abu Dhabi *Bachelor of Science* Aug 2019 - May 2023

Major: Mathematics, Minor: Computer Science, Cumulative GPA: 4.0/4.0 (summa cum laude)

ACEDMIC EXPERIENCE

Research Assistant | *Division of Science, New York University Abu Dhabi* Sep 2023 - Present

Works on the mathematical aspect of machine learning under Dr. Pierre Youssef

RESEARCH PROJECTS

How Bad is Training on Synthetic Data? A Statistical Analysis of Language Model Collapse | Nov 2023 - Apr 2024

Quantified how training language models on generated data reduces output diversity

A Fuzzy Decomposition Method to Establish Functional Inequalities | *Undergraduate Thesis* Mar 2022 - May 2023

Proposed a decomposition result for establishing functional inequalities (Paper)

PROJECTS

Column generation for mixed integer programming | Jul 2023 – Aug 2023

Combined graph-reduction algorithm and column generation for solving a modified vehicle routing problem

Reinforcement learning on vehicle routing problems | Dec 2022 - Feb 2023

Combined multi-arm bandit algorithm and local search methods for stochastic vehicle routing problem

Effects of colonialism on sentiments towards Queen Elizabeth II | Oct 2022 – Dec 2022

Emotion analysis on Tweets to compare the difference in sentiments towards the queen's death between former British colonies and other countries

Feature engineering for unbalanced class classification of delivery data | Sep 2022 - Oct 2022

Process features for classification with unbalanced class using gradient boosting classifier and data augmentation

Smart addressing system | Apr 2022 – Aug 2022

Named-entity recognition for UAE addresses using language models and graph-based methods; outperformed several commercially available geocoding services

Towards self-driving car | Oct 2021 – Dec 2021

Application of the YOLOv3 algorithm on real-time object detection in videos for self-driving car use case

Debunking the myth regarding Ghost Month and drowning | Oct 2021 – Dec 2021

Data analysis on drowning in relation to the Ghost Month, a traditional belief in East Asia

WORK EXPERIENCE

Data Science Intern | *Swftbox Delivery Service LLC, UAE*

Mar 2022 - Feb 2023, Jul 2023 - Aug 2023

Produced data-driven and mathematical solutions to optimize last-mile logistics, including a geocoding pipeline, prediction algorithms, and mathematical optimization for vehicle routing problems

Intern | *Arab Chamber of Commerce Taiwan, Taiwan*

Jun 2020 - Aug 2020

Produced commercial clips for Taiwanese businesses targeting Arab countries

Teacher and administrative assistant | *Julia's English Classroom, Taiwan*

Feb 2019 - Present

Gave English classes, engaged in classroom administration and promotion, compiled teaching materials for various levels

VOLUNTEER AND LEADERSHIP EXPERIENCE

Vice Director | *Global Devotion Association, Taiwan*

Jun 2017 – Present

Organized cultural exchange programs between Taiwan and the US, summer camps, volunteering and community outreach in aboriginal tribes and hospitals; promoted student initiatives and leadership

LANGAUGES AND SKILLS

Programming Langauges/Skills |

- Langauges: Python, Julia, C++, Java
- Data science and machine learning: pandas, numpy, scipy, scikit-learn, PyTorch
- Data visualization: matplotlib, seaborn
- Database building and management (SQL, noSQL)
- Geospatial data analysis and visualization (OpenStreetMap)
- API building

Langauges |

Mandarin (native), English (proficient), Arabic (intermediate), German (beginner)