Wei-Chun Tseng

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SKILLS

Programming: Python | SQL | JavaScript | C | C++ | HTML | CSS
Web Development: Node.js | Express.js | FastAPI | React.js | Vite.js | Three.js | TailwindCSS
Data Science: NumPy | Pandas | SciPy | PyTorch | Scikit-Learn
Tools & Database: Git | GitHub | GitHub Actions | Docker | Linux | PostgreSQL | MySQL | MongoDB

EDUCATION

Master of Science in Civil Engineering, Computer-Aided Engineering Division | National Taiwan University | 2023 | 4.0 / 4.3 GPA

- **Relevant Courses:** Object-Oriented Programming, Data Structure and Algorithms, Machine learning and Deep learning, Computational Statistics, Financial Technology.

Bachelor of Science in Civil Engineering | National Central University | 2021 | 3.8 / 4.0 GPA

- **Five-time** recipient of the Academic Excellence Award (Top 5% of the department).

EXPERIENCE

Research Assistant | E3 Research Group | August 2023 - October 2023

- Designed and implemented data analytics models with **Python** and **bootstrap-based** modeling framework to evaluate the carbon reduction potential of electric vehicle transition.
- Conducted feasibility studies for full transportation electrification by 2040, assessed impacts on carbon emissions, and formulated recommendations for strategic subsidy allocation to **maximize carbon reduction**.
- Increased policy review frequency by **12-fold** and reduced implementation costs by **80%**, significantly improving efficiency and effectiveness in environmental strategy execution.
- Recognized as **Honourable Mention/Finalist Team** at the **2023 Taiwan Presidential Hackathon.**

Graduate Student Researcher | E3 Research Group (Directed by Professor I-Yun Lisa Hsieh) | July 2021 - August 2023

- Developed robust **data processing pipelines** capable of efficiently managing **over 10 million records** of power generation data.
- Conducted detailed analyses of operational emissions with consideration for the high temporal and spatial variability of the power grid, identifying key areas for improvement.
- Demonstrated potential for a **24% reduction** in emissions by exploring synergies between renewable energy sources and electric vehicle operations.
- Published findings in a **Q1-level international journal**, contributing to advancements in sustainable practices.

Teaching Assistant | National Taiwan University | August 2022 - February 2023

- Led and instructed interactive **Energy Systems Engineering and Economics** classes with **over 60** participants, fostering engagement and understanding.
- Developed and delivered curriculum integrating theoretical knowledge with **Python** and **ML frameworks**, targeting complex issues in energy industry.
- Mentored students in hands-on projects, applying **ML algorithms** and **data analysis** to real-world datasets for energy forecasting and analysis, enhancing their practical skills and analytical capabilities.

PROJECTS

Mapin | September 2023 - October 2023

- Developed a web app using **React.js**, **Express.js**, **MongoDB**, **Node.js**, and **Mapbox API**.
- Enhanced user engagement by enabling the sharing of **20,000+** favorite places.

Carbon Emission and Abatement Potential Outlook for Buildings | July 2022 - August 2022

- Developed predictive models using **Long Short-Term Memory (LSTM)** techniques to accurately forecast solar power generation.
- Conducted life cycle analyses and developed an energy dispatch strategy that reduced building energy consumption by **50%** and carbon emissions by **38%**.
- Received the **Excellence Award** at the **2022 Unicorn ESG Technology Poster Competition** for advancements in sustainable technology solutions.

NTU CAECE NFT Certificate System | June 2022 - August 2022

- Developed NTU CAECE internship **Blockchain-based** NFT digital certificate system to provide secure, verifiable digital credentials.
- Employed **React.js** and **Node.js** for seamless frontend and backend integration, alongside **Solidity** for smart contract functionality.
- Utilized the **InterPlanetary File System (IPFS)** for secure and decentralized data storage, and operated within the **Linux** environment to enhance system reliability and performance.

INVOLVEMENT

Publications and Awards | National Taiwan University | June 2021 - August 2023

- **Publications**: 1 International Journal Paper **(Q1 level)** | 1 Domestic Journal Paper | 2 Conference Papers.
- **Awards:** 1 Best Paper Award | 1 Merit Paper Award | 1 Excellence Award | Honourable Mention/Finalist Team @ 2023 Taiwan Presidential Hackathon.