Wei-Chun Tseng

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SKILLS

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

EDUCATION

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

- **Relevant Courses:** Object-Oriented Programming, Data Structure and Algorithms, Machine learning and Deep learning, Computational Statistics, Financial Technology.
- **Journal Publication:** Impacts of Electric Fleet Charging Patterns under Different Solar Power Penetration Levels: Hourly Grid Variations and Operating Emissions

Bachelor of Science in Civil Engineering | National Central University | Taoyuan, Taiwan | 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 | Taipei, Taiwan | August 2023 - October 2023

- Designing and implementing data analytics models with **Python** and **bootstrap-based** modeling framework to evaluate the carbon reduction potential of electric vehicle transition.
- Conducting feasibility studies for full transportation electrification by 2040, assessing its impact on carbon emissions, and formulating recommendations for strategic subsidy allocation to **maximize carbon reduction**.
- Increasing policy review frequency by **12-fold** and reducing implementation costs by **80%**, significantly improving efficiency and effectiveness in environmental strategy execution.

Teaching Assistant | National Taiwan University | Taipei, Taiwan | 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 science and economics.
- 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

ML-training-dashboard | December 2023 - Present

- Created a user-friendly web service optimizing hyperparameter management in Machine Learning.
- Integrated functionalities for tracking hyperparameter history and visualizing learning curves.
- Employed **JavaScript**, **React.js**, **Node.js**, **Tailwind CSS**, and **Axios** to craft an intuitive frontend interface.
- Implemented robust server-side operations using **Python** and **FastAPI** for efficient backend logic processing.

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.
- Implemented a user-friendly feature enabling spot sharing, promoting seamless collaboration.

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

- Employed **Long Short-Term Memory (LSTM)** techniques to accurately predict solar power generation.
- Performed a detailed life cycle analysis to assess environmental impacts, guiding sustainable technology implementation.
- Developed an innovative energy dispatch strategy that minimized building peak load, achieving nearly a **50%** reduction in building energy consumption and a **38%** reduction in carbon emissions.

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 | NTU Computer-Aided Engineering | June 2021 - August 2023

- **Journal Publications**: 1 International journal paper **(Q1 level)** | 1 Domestic journal paper | 3 Conference papers
- **Conference Awards:** 1 Best Paper Award | 1 Excellence Award | 1 Merit paper award
- **Competition Award**: Honourable Mention/Finalist Team @ 2023 Taiwan Presidential Hackathon