Tzu-Hsuan Lin

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EDUCATION

University of Southern California, Viterbi School of Engineering — **Los Angeles, CA**
Master of Science in Computer Science — May 2023 (Expected)

National Central University — **Taoyuan, Taiwan**
Bachelor of Science in Computer Science and Information Engineering, GPA: 3.95/4.0 — Jan. 2021
Honors

- 11th place (out of 94 groups), National Intelligent Innovation and Creation Contest, Ministry of Education, Taiwan
- 4th place (out of 51 groups), Competition of Special Project, Department of CSIE, NCU, Taiwan

Relevant Coursework: Natural Language Processing, Internet of Things, Computer Vision, Pattern Recognition

INTERNSHIP EXPERIENCE

NextDrive Company — **Taipei, Taiwan**
Associate Back-End Engineer, Research and Development — July 2020-Dec. 2020

- Worked with four colleagues on designing and testing APIs for IoT products in TypeScript, PostgreSQL, and MySQL
- Deployed back-end system of an IoT operating webpage to AWS
- Completed three projects in groups, self-studied Jira and Docker, ensured APIs fit product features, reviewed codes, and improved performance

ACADEMIC PROJECTS

Hierarchical Discourse-level Structure for Fake News Detection — Dec. 2020-Jan. 2021

- Implemented Bidirectional LSTM with Multi-Head Attention and Transformer
- Achieved an accuracy rate of 80% for fake news detection

Fruit & Vegetable Pricing App — June-Oct. 2020

- Led a team of four to classify fruit and vegetable using CNN MobileNet and scrape market prices with web crawler
- Received 11th place in Taiwan's national contest

Web-based Time Series Anomaly Detection — Feb.-May 2020

- Implemented an anomaly detection method using Variational Autoencoder in Python
- Developed a user-friendly web page that allowed people without a background in machine learning to apply anomaly detection to any dataset
- Customized training parameters for users, such as activation functions, optimizers, and epochs
- Received 4th place in a schoolwide contest at NCU

Smart Chair Sensor — Oct.-Dec. 2019

- Built a real-time system with four parts, including pressure sensor and Bluetooth sensor, Firebase, machine learning model, and webpage
- Analyzed average waiting time for vacancies with LSTM model

RESEARCH EXPERIENCE

National Central University — **Taoyuan, Taiwan**
Advanced Computing and Networking Lab — Aug. 2019-Jan. 2021

- Worked with a group of three on designing web-based machine learning modeling construction assistant
- Implemented four applications of Autoencoder, including dimensionality reduction, image denoising (DAE), feature extraction, and anomaly detection (VAE)

PUBLICATION

Lin, T.-H.; Jiang, J.-R. Credit Card Fraud Detection with Autoencoder and Probabilistic Random Forest. *Mathematics* 2021, 9, 2683. https://doi.org/10.3390/math9212683

Lin, Tzu-Hsuan, and Jehn-Ruey Jiang. "Anomaly Detection with Autoencoder and Random Forest." *2020 International Computer Symposium (ICS)*. IEEE, 2020.

SKILLS

- Programming Languages: C++, Python, MATLAB, Java, Assembly Language
- Frameworks & Libraries: TensorFlow, Pandas, OpenCV, PyTorch, scikit-learn
- Languages: Mandarin (Native), Spanish (Beginner)