Yu-Hang (Arthur) Chien

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EDUCATION

Carnegie Mellon University, School of Computer Science

Master of Science in Artificial Intelligence and Innovation

• Courses: 15-513 Introduction to Computer Systems, 10-601 Introduction to Machine Learning

National Chengchi University

Bachelor of Science in Management Information Systems

- GPA: 4.0/4.3, Dean's List: Fall 2021, Spring 2022, Fall 2022, Spring 2023
- Research Grant for Undergraduate Students awarded by National Science and Technology Council
- Courses: Operating System, Machine Learning, Deep Learning, Data Structure, Algorithm, Computer Network, Database, Distributed Systems, Data Science, Statistics, Discrete Mathematics, Linear Algebra

Skills

Programming Languages: Python, Java, C/C++, SQL (PostgreSQL), JavaScript, HTML/CSS, R Machine Learning & Deep Learning: PyTorch, TensorFlow, Scikit-Learn, Transformer, Computer Vision, Natural Language Processing, Optimization Algorithm, Language Models, Graph Neural Network DevOps: Linux, Docker, Apache Kafka, RESTful API, MongoDB, Git/GitHub

WORKING EXPERIENCE

Research Assistant

Data Mining and Machine Learning Laboratory, Academia Sinica

- Developed a similarity module to determine document similarities by employing SimGNN on document flow graphs, SimHash for text comparison, and analyzing relationship graph of target document
- Implemented SpanBERT for Chinese coreference resolution
- Created a discrete denoising diffusion model for social graph generation

Research Assistant

Decision and Quantitative Analysis Laboratory, National Chengchi University

- Designed a component multi-layer perceptron (cMLP) and composed-cMLP to predict Granger causality for endogenous VAR data and complex retail data
- Organized regular team workshops in domains of deep learning, anti-money laundering in Bitcoin, integrated gradients, VAR, and Granger causality

Projects

Automated Hit-frame Detection for Badminton Match Analysis

- Created an automated tool to detect hit-frames, converting badminton videos into analyzable data
- Collaborated with sports analysts and proposed a **Transformer** to predict shuttle direction sequence given **RCNN**-detected player keypoint sequence
- Achieved 81% accuracy in trimming rally frames from videos based on shot angles
- Attained 96% accuracy in detecting hit-frames based on shuttle's flight direction

Pupil Learning Mechanism

- Introduced pupil learning procedure to adjust structure and weights of 2-layer neural networks during training
- Tackled issues of **vanishing gradients** and **overfitting** in neural networks
- Demonstrated PLM's superiority over linear regression models and backpropagation-based 2-layer neural networks

SeekIntern – A Smart Internship Search Engine

- Developed a Java application to structure search results into a prioritized tree format
- Applied **Boyer–Moore Algorithm** for efficient keyword matching

Application of Apache Kafka in Real-Time Stock Monitoring System

- Built Kafka producers with Node is to crawl data on 175 semiconductor stocks and evaluate stock prices, triggering alert notifications
- Utilized Stochastic Oscillator, Bollinger Bands, and SMA to develop an alert system
- Developed Kafka consumers to handle alerts and store data in MongoDB, and implemented a **RESTful API** to process frontend requests from React.js

Taipei, Taiwan August 2019 – January 2024

August 2024 - Present

Pittsburgh, PA

Taipei, Taiwan

Taipei, Taiwan

February 2023 - July 2023

April 2023 - July 2023