Biing-Kun Sheen

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Education

National Chung Hsing University — Taichung, Taiwan
M.S. in Information Management; ***GPA: 3.78/4.30*** — *Sep 2021 – Jun 2024*
Information Security and Blockchain Applications Lab

National Formosa University — Yunlin, Taiwan
B.S. in Information Management; — *Sep 2016 – Jun 2020*

Skills

Programming Languages: Python, Java, JavaScript, C++, C#, MATLAB, Scala, PHP
Web & Database Technologies: HTML, CSS, Flask, Django, Firebase, MongoDB, MySQL, SQL
Frameworks & Tools: TensorFlow, Keras, PyTorch, Scikit-learn, OpenCV, Docker, VMware, Kali Linux
Blockchain / DLT: Hyperledger Fabric, Solidity

Experience

National Chung Hsing University (NCHU) — Taichung, Taiwan
Research Assistant — *Sep 2021 – May 2024*

- Engineered a digital warranty management system to replace paper workflows using Flask and MongoDB, improving scalability and data integrity.
- Integrated Hyperledger to establish a private blockchain on Ubuntu, enabling secure and verifiable data transactions.
- Developed a real-time feedback analysis platform using Firebase and Flask for student response visualization.
- Applied machine learning within the STEAM framework to analyze instructional data, resulting in three international conference papers.
- Developed interactive **VR-based educational modules** in Unity to enhance classroom engagement and experiential learning.
- Designed and implemented **cybersecurity lab exercises** (e.g., Nmap, SQLMap, Wireshark) to provide hands-on training in network analysis and ethical hacking.

Science and Technology Policy Research and Information Center, NARLabs — Tainan, Taiwan
Research Assistant — *Jul 2022 – Jun 2023*

- Conducted Deepfake detection research at the Cybersecurity Center of Excellence (CCoE), funded by the National Science and Technology Council (NSTC), Taiwan.
- Designed and deployed the **TWHD (Taiwan High-quality Deepfake Dataset)** to improve detection accuracy for Taiwanese facial data, benchmarking it against KoDF, FaceForensics++, and DFDC datasets.
- Implemented and optimized Deepfake detection pipelines using **ResNet**, **Transformer**, and **XceptionNet** architectures in **TensorFlow** and **PyTorch**.
- Contributed to a team project developing a web-based Deepfake detection platform by refining data preprocessing workflows and improving dataset quality to enhance model accuracy.

National Chung Hsing University (NCHU) — Taichung, Taiwan
Teaching Assistant — *Sep 2022 – Jun 2023*

- Assisted in teaching *Programming and Application* and *App Mobile Devices* courses for non-technical students.
- Demonstrated strong Python proficiency by designing lab exercises, guiding debugging sessions, and explaining core programming logic in beginner-friendly terms.

Projects

MailGuard — Local LLM-Based Email Security Automation

- Developed a local AI-driven email security pipeline using **Ollama (Llama model)** integrated with **n8n**, enabling secure **on-device inference** for automated email analysis and response.
- Implemented a dual-layer LLM system where the local model detects and sanitizes potential security threats such as **prompt injection**, encoded payloads, and embedded commands before forwarding to **Gemini** for automatic reply generation.

Trusted Data Marketplace Based on IOTA Blockchain

- Built a membership management platform integrating product warranty information, leveraging **IOTA blockchain** to ensure data immutability and traceability.
- Tech Stack: **Flask, Nginx, MongoDB, Hyperledger, HTML/CSS/JavaScript**

Educational Management Platform Development

- Developed a course management system integrating student grades, records, and survey data into a **Flask–Firebase** backend with a searchable analytics dashboard.

Stock Price Prediction Using Deep Learning and Regression Models

- Implemented stock trend forecasting using **TensorFlow** and **Keras**-based LSTM architectures, fine-tuning hyperparameters (learning rate, batch size, sequence length) to optimize model performance.
- Compared model results across regression techniques (Linear, Lasso, Ridge, Polynomial, Decision Tree, Logistic Regression) using accuracy, F1-score, and loss metrics.
- Enhanced overall model precision through systematic data preprocessing and feature engineering.

Smart Contract Development and Deployment

- Developed and deployed **Solidity** smart contracts using **Remix IDE** and **MetaMask**, implementing transaction logging, role-based access control, and automated fund transfers.

VR Educational Game Development and Design

- Designed and developed an immersive VR educational game using **Unity**, combining interactive gameplay with instructional content to enhance learning engagement.
- Planned gameplay flow and learning objectives, conducted iterative testing and optimization for system stability and learning outcomes.

Smart Tourism and Air Quality Information Platform

- Developed a responsive web platform combining tourism information with real-time weather and air quality data using open APIs from Taiwan's Environmental Protection Administration.
- Implemented web crawling and data visualization to integrate travel blog content and enhance user experience and decision-making.

Amazon KDD Cup 2022

- Participated in the global **Amazon KDD Cup 2022** competition as a team member, using a **BERT-based model** to predict product similarity and achieved benchmark-level performance.
- Gained experience in data preprocessing, feature engineering, and model training for large-scale datasets.

AI-Based Fish Species Recognition System Platform

- Developed a deep learning-based fish species recognition platform using **PyTorch (YOLOv5)**, trained on custom datasets with tuned confidence thresholds and non-max suppression parameters for improved detection accuracy.
- The project passed the first-stage review and was invited for an on-site presentation to industry evaluators.

Publications & Research Outputs

TWHD: Taiwan Pioneering Deepfake Dataset for Multi-Face Forgery Detection, Master's Thesis, National Chung Hsing University (NCHU), 2024.

Enhancement of Information Security Literacy of University Students in Programming Courses, *ASET 2022 – 38th Science Education Conference.*

Using Flowcharting as a Modeling Tool in Programming STEAM Learning, *ASET 2022 – 38th Science Education Conference.*

Undergraduate Students' Technological Cognition and Risk Perception on Information Ethics, *ISTEM-ED 2024 – Singapore International STEM Education Conference.*