HSUEH YUAN, KU

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EDUCATION

Georgia State University — Atlanta, Georgia, United States
MS, Computer Science, GPA: 3.7 — *Aug 2023 - Dec 2024*

National Taiwan University of Science and Technology — Taipei, Taiwan
BS, Computer Science and Information Engineering — *Sep 2016 - Jun 2020*

Thesis Dissertations: "Spreading False Public Warning Messages through a Forged LTE Base Station", Hsuehyuan Ku, Yuxiang Lin, and Shinming Cheng, *CISC 2020*

SKILLS

C/C++, Golang, Java, Rust, Python, JavaScript, Vue.js, React, WebSocket, RabbitMQ, PostgreSQL, Redis, MongoDB, Cassandra, ElasticSearch, LogStash, Kibana, Terraform, Docker, Kubernetes, Grafana, GCP, AWS, PyTorch, Nginx

WORK EXPERIENCE

TeamT5 — Taipei, Taiwan
Backend Engineer — *Jun 2022 - Jul 2023*

- Developed an EDR backend using **Python**, including event collection, threat detection, and response mechanisms, enhancing endpoint security and incident response efficiency.
- Revamped the core service by replacing Twisted with the high-performance Sanic framework, boosting QPS by **30%**. This upgrade improved system throughput and ensured faster response times in high-traffic scenarios.
- Developed pytest-based extensions for both unit and integration testing, automating key parts of the testing process and enhancing service reliability. These tests boosted test coverage by **80%**.
- Developed an automated system that generates Swagger docs and test environments for each pull request, boosting development efficiency and ensuring up-to-date API documentation.

Ucfunnel — Taipei, Taiwan
Backend Engineer — *Apr 2021 - May 2022*

- Developed various modules for an e-commerce platform using **Golang** and **PostgreSQL**, including user management, shop management, event management and so on.
- Enhanced SSP advertising search performance by **47%** using **Redis** caching and lazy loading, reducing query response time from 300 ms to 160 ms, and improving real-time bidding accuracy and user engagement.
- Developed a batch upload system using **RabbitMQ**, replacing the old synchronous method. This improved reliability, reduced server load, and enhanced user satisfaction by eliminating page blocking and upload errors.
- Developed a scalable live streaming service using **WebSockets** for real-time synchronization between Facebook Live and chat, enabling seamless multi-platform streaming and boosting user engagement by **25%**.
- Led the design and implementation of a highly reliable **Webhook** service, reducing data transmission latency by **25%** and streamlining integration for seamless client-server communication.
- Established automated CI/CD pipelines with GitHub Actions, cutting deployment time by **40%** and reducing human error. Implemented **MySQL** failover clustering, ensuring **99.9%** uptime and improved fault tolerance.

NICT — Tokyo, Japan
Internship — *Jan 2020 - Feb 2020*

- Developed an advanced visualization and scoreboard system for Capture The Flag (CTF) events, featuring real-time score updates, interactive charts, and detailed performance metrics.

PROJECTS

- **AI Tutor**: Led the system design and development of an AI tutor, collaborating with a project manager and two engineers. Responsible for designing the overall system architecture, conducting feasibility research, and leading backend development using **FastAPI**. Also contributed to partial mobile development using **Flutter**.
- **Spoofing Alert (Thesis/Research Project)**: Established a research setup involving a simulated base station and utilized open-source SDN (**srsLTE**) in **C++** to implement SIB 10, 11, and 12 for sending false presidential alerts for research purposes.
- **URL Shortening Service**: Developed a URL shortening service using **Vue.js** for the frontend and **Golang** for the backend, integrated with **Redis** and **PostgreSQL**. The service had an active user base of over 100 users.