Chien-Hsien Chu

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Education

National Yang Ming Chiao Tung University (NYCU)   *Hsinchu, Taiwan*

M.S. in Computer Science   *Sep. 2023 – Present*

- Overall GPA: 4.2/4.3
- Research Focus: AIOps and Automation in Cloud-Native O-RAN Systems.
- Advisor: Prof. Chien-Chao Tseng.
- Relevant Courses: Cloud Native, Software-Defined Networking, System Administration, Network Administration.

Research Experience

Observability and AIOps for Cloud-Native O-RAN Systems (M.S. Thesis)

Graduate Research Assistant, Wireless & Internet Lab (WinLab), NYCU   *Oct. 2025 – Present*

- Currently contributing to the development of an integrated observability platform that unifies logs, metrics, and traces across O-Cloud clusters to enhance real-time visibility, fault diagnosis and fault recovery.

Infrastructure Automation and Management for Laboratory Environment

System Administrator, Wireless & Internet Lab (WinLab), NYCU   *Jul. 2024 – Present*

- Implemented **Infrastructure-as-Code (IaC)** automation using **Talos Linux** for cluster provisioning and **Flux CD** for continuous deployment and configuration management across laboratory infrastructure.
- Integrated and maintained multiple open-source components—including **Velero**, **MinIO**, **Grafana**, **Keycloak**, and others—to support disaster recovery, storage, observability, and access control across the laboratory infrastructure.
- Maintained the **Harvester cluster** used as virtualized workstations and managed compute and storage resources across laboratory nodes.
- Migrated the Harvester environment to **Proxmox VE (PVE)** to streamline maintenance, increase stability, and improve resource flexibility.

Kubernetes Networking and Security Enhancement for Department Infrastructure

System Teaching Assistant, CSIT, NYCU   *Jul. 2024 – Present*

- Migrated the clusters networking from **Flannel** to **Calico**, enabling fine-grained **NetworkPolicy** enforcement.
- Evaluated and implemented an **Istio Egress Gateway** to centralize outbound traffic routing, facilitating unified traffic management and external access control under Calico.
- Surveyed and evaluated **Kubernetes Secret Management** solutions, focusing on **External Secrets Operator (ESO)** and **OpenBao (HashiCorp Vault community fork)** integration.

Kubernetes Infrastructure and DevOps Workflow Development

Graduate Research Assistant, Information Technology Service Center, NYCU   *Sep. 2023 – Aug. 2024*

- Built and maintained the **Kubernetes-based infrastructure** for institutional systems, enabling scalable and containerized deployment environments.
- Developed and optimized **DevOps workflows** leveraging **GitLab-CI** to enhance automation, reliability, and consistency in system delivery.

Multi-Cluster Management System (Industry-Academia Collaboration)

GRADUATE RESEARCH ASSISTANT, WIRELESS & INTERNET LAB (WINLAB), NYCU *Sep. 2023 – Jan. 2024*

- Studied the architecture and orchestration of a Kubernetes-based **multi-cluster management system** integrating **Karmada**, **Cilium**, and **Thanos** for orchestration and observability.

Intent-Based MANO Framework for O-RAN Network Slicing

GRADUATE RESEARCH ASSISTANT, WIRELESS & INTERNET LAB (WINLAB), NYCU *Apr. 2025 – Oct. 2025*

- Supported the presentation and visualization of the O-RAN-compliant intent-based MANO framework, originally proposed by senior lab members, at *BIOTC 2025* (oral) and *IIHMSP 2025* (poster).

Work Experience

ISCOM Online International Information Inc. (采威國際資訊股份有限公司) *Taichung, Taiwan*

R&D ENGINEER, R&D DEPARTMENT *Jul. 2022 – Aug. 2023*

- Deployed and managed **Kubernetes** across both on-premises and cloud environments (**Azure Kubernetes Service, AKS**), enabling scalable and portable containerized workloads.
- Designed and implemented internal **GitLab CI/CD pipelines** to automate build, test, and deployment workflows, improving development efficiency and release consistency.
- Established the company's frontend framework foundation using **Next.js**, providing a unified architecture that simplified development and enabled cross-project code reuse.

ISCOM Online International Information Inc. (采威國際資訊股份有限公司) *Taichung, Taiwan*

FULL-STACK ENGINEER / TECHNICAL PROJECT MANAGER, BUSINESS UNIT *Jul. 2018 – Jun. 2022*

- Participated in the development of over **45 web and enterprise projects**, covering diverse system types such as **e-commerce platforms**, **LINE Bot services**, **POS management systems**, and **GIS-based information systems**, in collaboration with cross-functional teams.
- Designed and implemented both frontend and backend systems using diverse frameworks and technologies, including **ASP.NET Framework**, **ASP.NET Core**, **Laravel (PHP)**, **Vue.js**, and **Next.js**.
- Integrated multiple third-party and enterprise services such as **payment gateways**, **LINE OA**, and **POS systems**.
- Assisted clients in deploying and maintaining applications on the **Azure Cloud Platform**, managing web apps, virtual machines, and SQL databases for production environments.
- Led the refactoring of the company's legacy **.NET Framework** backend foundation into a cross-platform **.NET Core** architecture, enabling **containerization** and improving maintainability, deployment flexibility, and cross-project code reuse.

Internship – ISCOM Online International Information Inc., BitCloud Co., Ltd., and RCE Power Inc. *Taichung, Taiwan*

SOFTWARE ENGINEER INTERN *Jul. 2015 – Jun. 2018*

- (2017–2018) **ISCOM Online International Information Inc. (采威國際資訊股份有限公司)**: assisted in developing **ASP.NET MVC** and Web API modules, integrating external data sources such as public transport and mapping APIs, and contributing to enterprise web system development.
- (2016–2017) **BitCloud Co., Ltd. (比特雲科訊有限公司)**: supported UI and client-side optimization efforts for commercial web applications, focusing on cross-platform compatibility.
- (2015–2016) **RCE Power Inc. (低碳動能開發股份有限公司)**: developed automated data crawlers using **Python Selenium** and **MySQL**, streamlining data collection workflows for internal analytics.

Technical Skills

Cloud & Container Orchestration	Kubernetes (AKS, Talos Linux, Kubespray), Docker, Helm, Flux CD, Harbor, Karmada
Infrastructure & Automation	Proxmox VE, Harvester, Terraform (OpenTofu), Ansible, Velero, GitLab CI/CD, GitOps
Networking & Systems	Linux System Administration, IPv4 Networking, eBPF, MetalLB, Traefik, Istio, Calico, Cilium, Flannel
Observability	Prometheus, Grafana, Loki, Thanos, OpenTelemetry, Alertmanager
Security & Identity	Keycloak, HashiCorp Vault (OpenBao), NetworkPolicy, Cert-Manager, OAuth2 / OIDC
Programming & Scripting	Bash, C++, Python, Go, C# (.NET MVC/Core), PHP (Laravel), JavaScript (Vue.js / Next.js), SQL (MSSQL / MySQL)

Invited Talks

Dec. 2025	**Guest Speaker**, Advanced Kubernetes Networking and Troubleshooting	*NYCU*
Sep. 2024	**Guest Speaker**, Introduction to Kubernetes and Its Networking Fundamentals	*NYCU*
Mar. 2022	**Invited Lecturer**, Exploring Trends and Career Paths in the Information Industry	*CSMU*