

# Chia-An Lee

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## EDUCATION

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### National Yang Ming Chiao Tung University

Sep. 2019 – Jul. 2021

*Master of Science in Computer Science*

*Hsinchu, Taiwan*

- Advisor: Jyh-Cheng Chen @ Wireless Internet Research and Engineering Laboratory
- Research focuses on 5G core network

### National Chiao Tung University

Sep. 2015 – Jun. 2019

*Bachelor of Science in Computer Science*

*Hsinchu, Taiwan*

- Coursework: Computer Network, Operating System, System & Network Administration, Computer Security

## RESEARCH & WORK EXPERIENCE

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### Lab Server and Network manager

Jan. 2020 – Jan. 2021

*Wireless Internet Research and Engineering Laboratory*

*Hsinchu, Taiwan*

- Managed the server and network in lab. Including 6 servers (3 Proxmox, 1 VMWare, 1 Storage, 1 bare Linux), 2 Juniper switches, 10G switch, IP KVM, UPS, Aruba AP, etc.
- Provided services such as NFS, Samba, Wireguard VPN, NAT, Discourse forum, VM platform, and so on.

### Team Lead (Network Team)

Feb. 2018 – Sep. 2019

*Computer Center, Department of Computer Science, National Chiao Tung University*

*Hsinchu, Taiwan*

- Led the network team to host all the networking of our department. Including service intra-net design and deployment, 3-layer network architecture, static and dynamic routing, IPv6, network high availability, and VPN networking.
- Led the team to deploy monitoring and alarming systems for network and service via Nagios, Cacti, and LibreNMS.
- Hosted the co-location center for our department. Including once center rebuild and server migration.

### Part-Time (Linux Team, PC Team)

Feb. 2018 – Sep. 2019

*Computer Center, Department of Computer Science, National Chiao Tung University*

*Hsinchu, Taiwan*

- Managed Linux workstations. Routine jobs include package updating, LDAP usage, log watching, abnormal user behavior checking, etc.
- Managed Windows PC. Deploy OS via Clonezilla and application via Ansible. Fixed hardware issues.

### Intern (Container Platform)

Jul. 2018 – Dec. 2018

*National Center for High-Performance Computing*

*Hsinchu, Taiwan*

- Proposed a lightweight resource dispatching system base on Docker container and NVIDIA GPU. Made the AI PaaS provided by NCHC more flexible and scalable.
- Published “Implementation of lightweight GPU cloud computing AI platform”, *TANET 2018*

### Intern (Blockchain)

Jul. 2017 – Dec. 2017

*National Center for High-Performance Computing*

*Hsinchu, Taiwan*

- Maintained a private Ethereum chain inside NCHC and testing smart contract on it.

## EDUCATIONAL PROJECT & AWARDS

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### Project free5GC

Jan. 2019 – Jul. 2021

*An open-source 5G core network*

- Developed the first open-source 5G core network project.
- Focused on the user plane function (UPF). Implemented the N4 interface to receive rules from session management function (SMF) and add rules into user plane data forwarding process.
- Improved the performance of free5GC as my thesis: **Design and Implementation of a LowLatency and HighThroughput 5G Core Network**. In the thesis, ported free5GC on the OpenNetVM platform reaches 11 times of throughput in user plane and one-half of latency in control plane communication.

### NCTU CSCC Intranet Infrastructure

Jan. 2018 – Jan. 2019

*Intranet design and implementation*

- Redesigned and deployed the service network of CSCC with an intranet infrastructure architecture. Including 2-layer network architecture, NAT, firewall, DMZ, HA, etc.
- Made the new network non-wasted on public IP resources, flexible, scalable, and more secure.

### Awards

- ACM ICPC 2017 Asia Hua-Lien Regional Contest, Sep. 2017 Silver Medal
- ACM ICPC 2017 Asia Jakarta Regional Contest, Nov. 2017 Honorable Mention
- National Collegiate Programming Contest, Sep. 2017 14<sup>th</sup> Place

## SKILLS

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### Programming Languages

C, C++, Go, Python, Shell Script

### Professional Skills

Linux, Cisco, Juniper, IPv6, VPN, firewall, 5G, NFS, Docker, OS, Git, L<sup>A</sup>T<sub>E</sub>X