



# Ming Teng Wu 吳明騰

## Education

### CSIE, National Central University – Master’s degree

Sep. 2023 – Now

- Rank / All : 1 / 138 ( 0.72%)
- GPA: 4.3 / 4.3
- Laboratory : Advanced Defense Laboratory.
- Advisor: Dr. Fu-Hau Hsu (許富皓博士)

### CSIE, National Chi Nan University – Bachelor’s degree

Sep. 2019 – June. 2023

## Projects

### Bare Programming on rpi3 (Raspberry Pi 3)

Jan. 2024 – Now

- Bootimg Implementation
  - Implement traversal devicetree to find the information of device rpi3.
  - Implement initial ramdisk through archive format cpio.
  - Implement a bootloader that loads kernel images through UART.
- Exception and Interrupt Implementation
  - Implement Synchronous Exception through enable CPU core timer to print something in the specific second.
  - Implement Asynchronous Read and Write through UART’s interrupt handler putting/getting data in/from buffer.
- Thread and User Process Implementation
  - Implement Run Queues, Wait Queues, Scheduler and Context Switch.
  - Implement Syscalls including fork(), exit(), kill(), read(), write(), etc.
  - Implement POSIX Signal including signal() and kill().
- Virtual Address Implementation
  - Implement 4-level Page Table for Kernel Process and User Process.
  - Implement the function mmap() with VMA (Virtual Memory Area) for User Process.
  - Implement Page Fault Handler, Demand Paging and Copy-on-Write.
- Tool: C language, Raspberry Pi 3

### Tracing of Linux Kernel Code

Sep. 2023 – Jan. 2024

- Research in two topics “Paging” and “Scheduler” through adding new System Calls in the Linux Kernel.
  - Paging: How to translate the Physical Address from Virtual Address?
  - Scheduler: How the Linux Scheduler do when we modify the priority of each process?
- Tool: C language, Linux V6.7 environment (Released Jan-2024).

### 5G TCP proxy Project

Feb 2024 – Dec. 2024

- Work with ITRI ( Industrial Technology Research Institute 工研院 )
- Implementing TCP Proxy on a 5G base station to intercept traffic, replacing the TCP congestion algorithm between them, mitigating speed losses caused by wireless network packet loss.
- Tool: C language, DPDK (Data Plane Development Kit)

## Contest Experience

### 2023 Cyber Security Competition (資安技能金盾獎)

Oct. 2023 – Nov. 2023

- This Cyber Security Contest is hold by the Ministry of Digital Affairs (數位發展部資通安全署)
- Rank / All : 30 / 199 ( Advanced to the Finals.)

### Google Universal Image Embedding

Jul. 2022 – Nov. 2022

- It’s a Deep Learning contest from Kaggle hold by the Google
- Design an Embedding Model to turn the raw image into Feature Embedding with Dimension less than 64, and project these Feature Embeddings to the Hyperplane for Clustering.
- Rank / All : 58 / 1009 (5%)

## Skills

- Languages:** C/C++ (Intermediate), Assembly Code (Intermediate), Python, Bash, Java, HTML, CSS, JavaScript
- Development Tools:** rpi3(Intermediate), Git, Docker, Proxmox
- Domain Knowledge:** Linux Kernel(Intermediate), Operating System(Intermediate), Data Structure, Algorithm, Computer Organization, Cyber Security