

ALAN TSENG

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SUMMARY

Embedded Software Engineer with 1+ years of experience in BMC firmware development at a leading ODM. Experienced in Yocto, OpenBMC, IPMI, and cloud-native infrastructure. Passionate about system software, low-level debugging, and integrating AI capabilities into embedded systems.

OBJECTIVE

Seeking full-time roles in embedded systems development, leveraging experience in firmware, cloud infrastructure, and cross-platform debugging.

EDUCATION

M.Sc., Computer Science, National Taiwan University

Aug 2021 - Feb 2024

Overall GPA: 4.12/4.3

EXPERIENCE

Embedded Systems Engineer – BMC Firmware (OpenBMC, Yocto)

Dec. 2024 - Present

Wiwynn, New Taipei City, Taiwan

- Contributed to OpenBMC firmware development and AWS platform bring-up for L10-class OCP products, focusing on kernel bring-up and userspace integration on the ASPEED AST2600 platform.
- Maintained Buildroot-based systems for AWS server platforms, including Device Tree and FRU configurations during early hardware validation.
- Built a Python/pytest-based state machine to automate testing of IPMI commands (e.g., power control), reducing manual testing time by 30% while validating Redfish NTP configurations and SEL logging accuracy.
- Investigated IPMI command issues (e.g., incorrect ipmitool lan print values) using GDB and gdbserver on ARM Cortex-A7; documented procedures and taught teammates how to use gdbserver and analyze core dumps effectively.
- Developed and verified system services and inter-process communication via systemd and D-Bus under Yocto/OpenBMC environments.

Tech Stack: OpenBMC, Yocto, Buildroot, Python, GDB, pytest, I2C, GPIO, Device Tree, systemd, D-Bus, IPMI, Redfish

Server Software Engineer – Provisioning Automation (Kubernetes)

Sep. 2024 - Dec. 2024

Pegatron, Taipei City, Taiwan

- Developed a Kubernetes-based rack server testing system using kubeadm, Helm, and Shell scripting.
- Automated PXE-based OS provisioning (Windows/Linux) across ARM and x86 servers.
- Integrated low-level networking components and commands (e.g., ARP, DHCP, TFTP) into provisioning and validation workflows.
- Reduced repository size from 663 MB to 2.4 MB by streamlining base images and minimizing layer redundancy.

Tech Stack: Kubernetes, PXE, ARP, DHCP, TFTP, Helm, Shell, Infrastructure Automation, ARM/x86

Software Developer Intern

Jul. 2022 - Nov. 2022

LINE Corporation, Taipei City, Taiwan

- Reduced API development time by 20% by introducing Swagger-driven codegen with Kubernetes deployment, DNS routing, and load balancing.
- Led 5 developers in building an NFT merchant platform using NextJS and Spring Boot during an internal hackathon.
- Presented Ethereum & dApp architecture in internal study sessions.

- Contributed to a scalable, data-driven B2B system with Nx monorepo practices.

SELECTED PROJECTS AND COURSES

Performance Analysis of T-MAC and BitNet (Open-Source Projects) *Tools: perf, ufttrace, Linux, C++*

- Analyzed CPU-side inference performance of **T-MAC** (Table-based Mixed-Precision Acceleration Core) and **BitNet**, both designed for low-bit LLMs.
- Utilized **perf** to collect hardware counters (IPC, cache/TLB misses, page faults) and **ufttrace** for function-level execution profiling.

Linux Kernel Internals Course

- [GitHub: course_linux_kernel](#) – Explored kernel memory management, process scheduling, and data structures in C.

Drum.io - Course Project

- Won top of the class with 50+ votes by developing a trainable air drum game using TensorFlow.js, Arduino, and WebSockets.

Adaptive Driving Beam System - Undergraduate Thesis

- Award a scholarship by the Ministry of Science and Technology, Taiwan, published in the 2020 IPPR Conference on Computer Vision, Graphics, and Image Processing (CVGIP) and Honored for top 1% research & graduation by solving the nighttime vehicle detection and designing an adaptive driving beam using CycleGAN, YOLO, Statistics and SVM.

HONORS

- **Research Excellence Award** – Honored for top 1% research and academic excellence upon graduation.
- **Intel Andy Grove Scholarship** – Selected from 2000+ global applicants for academic and leadership potential.
- **College Student Research Scholarship** – Awarded by Taiwan's Ministry of Science and Technology.

EXTRA-CURRICULAR ACTIVITIES

- **Lead, Developer Student Club (Google DSC)** – Led 70+ students, conducted sessions on ML, Python, Flutter, and Posenet.
- **Leader, ACM Competitive Programming Club** – Hosted weekly UVa and algorithmic coding sessions.
- **Volunteering**
 - Tech support at ART FUTURE blockchain exhibit.
 - Staff at SITCON and COSCUP for DSC and GDG events.

Skills

- **Core Expertise:** Embedded Software Development, Cloud-Native Applications, Web Systems
- **Programming Languages:** C/C++, Python, Shell, JavaScript, Golang
- **Cloud & Observability:** Kubernetes (server deployment), Docker, Grafana, Helm
- **Toolchain & Debugging:** Yocto Project, BuildRoot, Gnu Make, perf, valgrind, GDB
- **SoC Platforms:** ARM Cortex-A7, Cortex-A53, Cortex-M3
- **Hardware Interfaces:** I2C, SPI, GPIO, UART, ADC
- **AI & Data Science:** TensorFlow, Scikit-learn

- **Web Development:** Node.js, React.js