Eka Gunawan

Taipei 0973964516 eka.mailme@gmail.com Software Engineer linkedin.com/in/eka-gun-tw

SUMMARY

Software engineer with 3+ years of experience, including in embedded firmware for telecom and networking devices. Proficient in C/C++ and multithreaded embedded systems. Quick to learn, eager to share knowledge, and highly collaborative in cross-functional teams.

SKILLS

- **Programming Languages**: C, C++, Python, Bash, Lua, JavaScript, C#, HTML, CSS, ASP
- **Embedded Systems & Firmware**: microcontrollers, RTOS, multithreading, OpenWrt, embedded Linux, hardware bring-up
- **Communication Protocols**: SPI, UART, I2C, USB, Ethernet, TCP/IP, IPC, socket programming, ubus
- **Testing & Debugging**: Automated unit testing, CI pipelines, bug tracking, GDB, JTAG, Wireshark, Spirent, MT2
- **Tools & Platforms**: Git, GNU Makefile, Qt, ARM architecture, schematic reading, telemetry data analysis
- **Statistical & Analytical Tools**: Applied statistics (RCT, DiD, regression, IV), data visualization, R
- **Security & Compliance**: cryptography, POS systems, PCI/EMV compliance (basic knowledge)

EXPERIENCES

Software Engineer | Comtrend Corporation, Taipei, Taiwan 2022 - 2025

Developed embedded firmware for telecom devices

- Full-stack firmware development and integration
  - Developed firmware for telecom and networking devices (including routers, switches, GPON, and XGSPON) that runs in the background and enables user configuration via PC-connected GUI, ensuring seamless front-end and back-end integration.
- Firmware Optimization
  - Reduced device's power usage by ~54% through backend customization of EEE (Energy Efficient Ethernet), beacon interval tuning, WiFi on/off logic, CPU frequency scaling, and Wake-on-LAN (WOL)
  - Designed and implemented QoS functionality on devices, enabling traffic prioritization and bandwidth shaping across multiple LAN/WAN interfaces.
- System Stability & Testing
  - Raised system uptime from 95% to 99.9% through test automation (Spirent, MT2), identifying and fixing high-priority bugs early in the cycle.
- User & Dev Experience
  - Streamlined user setup by integrating back-end systems with a responsive GUI, lowering configuration errors.
  - Boosted engineering efficiency ~70% by introducing Git workflows and improving team-wide code integration for 30+ developers.
- Team Collaboration
  - Optimized firmware development by collaborating with HW and QA teams, reducing time-to-market by ~30% through aligned feature planning and embedded integration.
  - Streamlined user setup by integrating back-end systems with a responsive GUI, lowering configuration errors.
- Security & System Integrity
  - Implemented secure boot mechanisms to ensure firmware authenticity and prevent unauthorized code execution on embedded telecom devices.
- Remote Management & Firmware Lifecycle
  - Integrated TR-069 protocol and ACS (Auto Configuration Server) support to enable remote device management, provisioning, and diagnostics across customer networks.
  - Developed and tested firmware upgrade functionality, supporting safe, rollback-capable system updates both locally and remotely.

Robotics Software Engineer | Quadrep, New Taipei City, Taiwan 2021 - 2022

Built real-time embedded control systems and GUIs for robotic automation in industrial environments.

- Algorithm & Motion Control: designed real-time algorithms to process 3D point cloud data, enabling precise motion control

for a 6-DOF robotic arm and improving accuracy in embedded robotic systems.

- Multithreaded GUI Development : developed a multi-threaded GUI for live monitoring and control, preventing system lags and ensuring responsive user interaction during active operation.
- Automation Integration: increased automation efficiency by ~20–25% and cut manual intervention by ~33% through seamless integration of sensor data processing and motion logic in the embedded firmware.

EDUCATION

Master of Science - Electrical Engineering & Computer Science (EECS)

National Taipei University of Technology (NTUT), Taipei, Taiwan 2019 - 2021

- Relevant coursework: Embedded Systems, Real-Time Computing, Software Design (C++, Algorithms, Data Structures), Operating Systems, GUI Programming.
- Graduate project: developed a deep learning-based identification system with >70% accuracy.
- Gained hands-on experience in embedded C/C++ programming, multithreaded application design, and hardware-software integration.

Bachelor of Science - Engineering Physics

Institut Teknologi Bandung (ITB), Bandung, Indonesia

- Major course works includes programming's (OOP with Java), engineering math, linear algebra, electronics, numerical method, digital logic system and design, signal processing.
- Built foundational skills in low-level hardware, control systems, and applied physics for computing.

LEADERSHIP

Co-Founder (Part-Time Contributor) | **beeT Corp**, Bandung, Indonesia 2018 - 2019

- Collaborated in the early-stage formation of a software and IT consultancy startup, contributing to service design, team structuring, and initial project planning.
- Gained experience in cross-functional communication, client engagement, and strategic problem-solving, skills now applied to technical decision-making in firmware engineering roles.

CERTIFICATES

Advanced SQL, Kaggle, 2022

- Completed in-depth SQL challenges involving complex joins, window functions, and data cleaning techniques on large datasets. Strengthened ability to extract insights for technical debugging and performance monitoring.
- [View Certificate](https://bit.ly/3PBno41)

Python Programming, HackerRank, 2021

- Demonstrated proficiency in Python through coding assessments covering algorithms and problem-solving.
- [View Certificate](https://bit.ly/3SLxDXn)

AWARDS

Taipei ICT Scholarship, Taiwan, 2019 - 2021

- Awarded for outstanding academic performance and research potential during graduate studies in the field of information and communication technology.

Taipei Tech. Scholarship, National Taipei University of Technology, Taiwan, 2019 - 2020

- Merit-based scholarship recognizing academic excellence and contributions to the university's research and development initiatives.

ADDITIONAL INFORMATION

Languages: English – professional proficiency (TOEFL iBT 80), Mandarin – beginner level

References: Available upon request