

鄭聖文 Sheng-Wen (Colin) Cheng

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Employment

NVIDIA

Taipei, Taiwan

System Software Engineer

Feb. 2024 - Now

- Develop secure bootloader software of Tegra SoCs as part of the Platform Security Controller (PSC) team
- Implement security features such as measured boot, image authentication, encryption, and decryption

GallopWave

Taipei, Taiwan

Sensor Fusion Engineer

Sept. 2023 - Feb. 2024

- ADAS algorithm (advanced driver-assistance system) validation

Avilon Intelligence

Tainan, Taiwan

Embedded System Engineer

Sept. 2018 - Mar. 2021

- Designed ARM Cortex-A72-based UAV onboard computer, including PCB layout and system bring-up
- Integrated 4G LTE System-on-Module (SoM) into UAV platform
- Developed vision-based tag detection algorithms for autonomous landing

Education

National Taiwan University (NTU)

Taipei, Taiwan

Ph.D. Student in Electrical Engineering (Withdrew)

Sept. 2022 - May 2024

- Transitioned to industry to gain professional experience while remaining involved in academic activities
- Presented at the **Embedded Open Source Summit (EOSS) 2024**, hosted by the **Linux Foundation**

National Yang Ming Chiao Tung University (NYCU)

Hsinchu, Taiwan

M.Sc. Eng. in Robotics

Sept. 2019 - Nov. 2021

Master Thesis: “Design of Indoor-Outdoor Smooth Transferable Unmanned Aerial Vehicle”

- Participated in academic collaborative research with **Taiwan Space Agency (TASA)**

Providence University (PU)

Taichung, Taiwan

B.Eng. in Computer Science and Information Engineering

Sept. 2015 - June 2019

- First prize in the graduation project competition held by the College of Computing and Informatics

Advanced Academic Coursework

MITx MicroMasters Program in Statistics and Data Science

Online (edX)

Certificate Program by the Massachusetts Institute of Technology

Jan. 2024 – Nov. 2025 expected

- Completed graduate-level courses in *Probability*, *Statistics*, *Machine Learning*, and *Time Series Analysis*
- Completed all coursework; Capstone Exam (final requirement) pending.

Open-Source Projects

- **Tenok:** A Linux-like real-time operating system for Robotics and the Internet of Things (IoT) [\[GitHub\]](#)
 - A POSIX compliant RTOS targeting **ARM Cortex-M**
 - Features: pthread, mutex, semaphore, pipe, message queue, signals, SLAB, SoftIRQ, printk, etc.
- **NCRL flight control:** A Quadrotor flight control software based on FreeRTOS [\[Video\]](#)
 - Leading developer of the overall system including navigation, control, system integration, etc.
 - Licensed to the **Taiwan Space Agency (TASA)** for scientific research
- **Semu:** A minimalist RISC-V system emulator capable of running Linux kernel [\[GitHub\]](#)
 - Contributed to hardware emulation of GPU and block device with *VirIO* and *SDL*

Publications

- **S.-W. Cheng** and T.-H. Cheng, “Data-Driven Estimation of Quadrotor Motor Efficiency via Residual Minimization,” manuscript in preparation.

- **S.-W. Cheng** and Y.-H. Huang, “A Computationally Efficient GNSS/INS Design of Multirotor based on Error-state Kalman Filter,” *2023 62nd Annual Conference of the Society of Instrument and Control Engineers of Japan (SICE)*, Tsu, Japan, 2023. [\[Link\]](#)
- **S.-W. Cheng** and H.-A. Hung, “Robust State-Feedback H_∞ Control of Quadrotor,” *2022 International Automatic Control Conference (CACCS)*, Kaohsiung, Taiwan, 2022. [\[Link\]](#)
- S.-W. Wang, **S.-W. Cheng**, and C.-C. Huang, “Puyuma: Linux-based RTOS Experimental Platform for Constructing Self-Driving Miniature Vehicles,” *Science and Information Conference (SAI)*, London, United Kingdom, 2018. [\[Link\]](#)

Academic Service

- Invited Reviewer for the **2026 American Control Conference (ACC 2026)**

Presentations

- “Building a Quadrotor Simulator with Python - Modeling, Simulation, and Control,” *Open Tech Conference (OpenTechConf 2025)*, Hong Kong, 2025. [\[Link\]](#) [\[PDF\]](#)
- “Crafting a Vision-Aided Software Stack for UAV,” *Embedded Open Source Summit (EOSS 2024, Linux Foundation Event)*, Seattle, USA, 2024. [\[Link\]](#) [\[PDF\]](#)
- “Trends in Machine Learning for Unmanned Aerial Vehicle Applications,” *Mobile Open Platform (MOPCON 2024)*, **Keynote speaker**, Taiwan, 2024. [\[Link\]](#) [\[PDF\]](#)
- “Creating a Linux-like Real-Time Operating System for Quadrotor Drones,” *Conference for Open Source Coders, Users, and Promoters (COSCUP 2024)*, Taiwan, 2024. [\[Link\]](#) [\[PDF\]](#)
- “Tenok: Build a real-time operating system for Robotics,” *Conference for Open Source Coders, Users, and Promoters (COSCUP 2023)*, Taiwan, 2023. [\[Link\]](#) [\[PDF\]](#)

Invited Talks

- PEGATRON Corporation: “Trends and lessons learned in deep learning and generative AI applications for UAV,” Taipei, Taiwan, 2024.