CHIEH KAO

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OBJECTIVE

Electrical Engineer specializing in system-level mixed-signal PCBA design, with 4+ years of mass-production smartphone platform experience at ASUS. Proven expertise in owning boards from schematic and layout through bring-up, validation, and EVT/DVT/PVT production, with strong focus on HDI PCB, SI/PI optimization, and high-speed interfaces.

EDUCATION

Arizona State University **August 2023 - May 2025**
Master's, Robotics and Autonomous Systems *GPA: 3.94*
- Relevant coursework: Embedded Systems, Robotic Systems, AI Machine learning, Python Programming, Mechatronic Systems.

National Sun Yat-sen University **September 2015 - June 2017**
Master's, Photonics *GPA: 3.53*
- Relevant coursework: OLED, Solar Cells.

Chung Yuan Christian University **September 2011 - June 2015**
Bachelor's, Electronics Engineering *GPA: 3.62*
- Relevant coursework: Semiconductor.

PROFESSIONAL EXPERIENCE

Gudeng **Glendale, AZ, USA**
Technical Customer Service Engineer *October 2025 - Present*
- Defined the system architecture and retrofitted FOUP load ports with a nitrogen purge/fill module, reducing humidity levels and improving wafer-surface reliability and post-etch film uniformity.
- Integrated the electrical control cabinet for the upgraded load-port system, defining hardware–software interfaces across pneumatic valves, regulators, control PCBs, and network modules to enable closed-loop purge control, real-time sensing, and fault-diagnostics workflow.

Karh **New York, NY, USA**
Hardware Engineer Intern *June 2024 - August 2024*
- Evaluated sensor integration paths for battery management systems to enhance safety monitoring and early detection of abnormal thermal behavior, supporting hardware-level risk mitigation.
- Researched emerging battery technology trends and evaluated competitor products to shape forward-looking R&D strategies and accelerate product innovation.
- Performed comprehensive risk assessments and ensured strict adherence to New York Fire Code regulations, significantly reducing potential safety hazards.

ASUSTeK Computer Inc. **Taipei City, Taiwan**
Senior Hardware Engineer *November 2017 - April 2022*
- Owned schematic design and platform-level system architecture for inertial sensing and power sub-systems across multiple ZenFone generations, driving HDI PCB/FPC layout, SI/PI closure, and EMI/EMC compliance for global mass production.
- Led board bring-up and system-level validation for multi-interface sensing platforms (I^2C, SPI, MIPI, PCIe), ensuring signal integrity, proper pull-up design, and robust power sequencing to achieve stable mass production.
- Reviewed and integrated RF and power-related blocks into the board to ensure proper routing, grounding, and system-level coexistence, while coordinating with RF teams for design constraints and verification.
- Owned the design and execution of board bring-up checklists and validation test plans, covering power sequencing, clock/reset integrity, interface compliance, and long-term reliability testing for mass production.
- Performed board-level failure analysis across manufacturing, SI noise, and boot failure issues, coordinating with ODMs and suppliers to drive design fixes verified across EVT/DVT/PVT for volume production.
- Partnered cross-functionally with electrical, mechanical, firmware, reliability, and camera engineering teams to define HW–SW interfaces, triage sensing failures, and drive system-level product improvements.
- Developed automated feature-validation workflows and long-term reliability test pipelines for inertial sensors, improving mass-production yield to 99% and strengthening long-term system robustness.
- Spearheaded invention & patenting of an automatic camera shutoff mechanism, improving drop durability and protecting high-value modules. (Patent No. 110114582)

ACADEMIC EXPERIENCE

Arizona State University
- Built “Bennis”, an autonomous tennis-ball-collecting robot using ROS 2 and sensor fusion, achieving real-time detection and trajectory prediction; presented at the 2024 Southwest Robotics Symposium.
- Designed a vision-based predictive landing system in MATLAB/Simulink and validated it on a physical drone with real-time tracking and adaptive control. Finalist, MathWorks MiniDrone Competition – U.S. & Canada.
- Deployed a TensorFlow-trained, quantized CNN keyword-spotting system to an Arduino Nano 33 BLE Sense for low-power, real-time inference.
- Programmed a Pololu 3pi+ robot with real-time feedback control using IR and line sensors to autonomously climb and descend ramps, maintaining balance via pitch/roll correction for improved motion stability

NSYSU
- Contributed to the patents TWI651345B, “Method for manufacturing flexible transparent conductive film and flexible transparent conductive film, transparent electrode, and organic light-emitting diode using the same. (2019)
- Graduate Thesis: “The study of enhanced PEDOT: PSS conductivity via various solvent with different treatments for ITO-free organic light emitting diodes” (2017)

CYCU
- Department Of Electronic Engineering Capstone Project Competition
- Conferred an award for excellent work related to the capstone project topic, 'Analysis of Nitrogen Laser and Nitrogen Ion Movement in Magnetic Fields'. (2014)

SKILLS

Skills: HDI PCB, PCBA, Board Bring-up, Cadence Allegro, OrCAD, Multimeters, Oscilloscopes, I2C, SPI, MIPI, PCIe, Embedded System, Electronic circuits, Robotics, ROS2, SolidWorks, Python, C/C++, MATLAB, AI/ML, TensorFlow, OpenCV, YOLOv8, Linux, Git