Kenny Na

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Education

University of Waterloo - BASc, Systems Design Engineering — Sep 2023 – Apr 2028

Experience

Electrical Engineering Intern – Etched – San Jose, CA — May 2025 – Aug 2025

- Drove schematic and layout in Cadence OrCAD/Allegro for a 16-layer HDI PCB with an STM32 and high-speed signal breakouts (e.g. PLL clocks, PCIe 5.0) to perform S-parameter tests and emulate rudimentary ASIC functionality.
- Researched reliability requirements and designed a PCB to measure effects of high DC current draw (450W+) on fine-pitch BGA solder balls over the product life cycle, including electron migration and thermal runaway.
- Designed three 12-layer HDI test interposer PCBs to sink up to 1500A with vendor-specific load slammers, while optimizing BGA fanout by using PTH/BB/microvias and researching optimal via sizing, plating, and surface finish.

Electrical Engineering Intern – Waterloo Aerial Robotics Group – Waterloo, ON — Sep 2024 – Dec 2024

- Designed a mixed-signal PCB integrating a 12-5V buck converter, LDO, ESP32, and impedance-matched RF transceiver in Altium Designer for an ExpressLRS-based RC plane, supporting up to 6 PWM outputs for servo and ESC control.
- Simulated input filtering on buck converters with LTspice to prevent transient voltage spikes from source impedance.
- Designed a USB-C source to arbitrate up to 20V 5A for stationary drone debugging, complying with USB-PD & 3.2 spec.
- Assembled and reworked PCBAs using stencils and hotplate while validating with DMM, oscilloscope, and e-load.

IT Infrastructure & Operations Intern – Grand & Toy – Vaughan, ON — Jan 2024 – Apr 2024

- Managed 250+ computer users through Microsoft AD and Group Policies, using MMC to manage DHCP settings.
- Led deployment project for 100+ custom-imaged laptops using Microsoft Deployment Toolkit and Windows Server.
- Utilized Trend Micro Apex One to identify and remediate multiple cases of malware infection on employee PCs.

Teams & Projects

Waterloo Reality Labs – PlatformIO, C++

- Created the world's first collegiate engineering design team developing open-source, hackable VR and AR headsets.
- Built an open-source, DIY 3-DoF VR headset with compatible eye-tracking that interfaces with SteamVR.
- Upgrading to over 63% higher horizontal FOV by using custom-cut wide fresnel lenses and canted displays.
- Made a real-time camera-based eye tracker with an ESP32, OV2640, IR LEDs, and open-source tracking software.
- Leading SysInt for Varifocal, a custom HMD with real-time focal length adjustment using voice coils and eye tracking.

3S 20A ESC – Altium Designer, Keysight Power Analyzer

- Designed a compact 3-phase motor driver board with an STSPIN32 MCU to control BLDCs on drones with 3S batteries.
- Optimized MOSFET selection with calculations for power loss and maximum temperature in weighted decision matrix.
- Performed a power delivery network analysis, identifying improvements in via arrangement and stackup design.

Testing Contributor: Ryzen Controller – Linux, Clover Bootloader

- Dumped DSDT from laptops and edited ACPI to modify AMD STAPM power limits, sideloading with Clover.
- Benchmarked slow and fast PPT (power targets) for the Ryzen 5 2500U using AMD uProf (now part of Ryzen Master).

Skills

- **Hardware:** Power Electronics, Analog/Digital Design, PCB Layout, Schematic Capture, Simulation & Validation
- **Applications & Tools:** Altium Designer, Cadence OrCAD, Allegro, LTSpice, SOLIDWORKS, Arduino, Git, Linux
- **Languages & Protocols:** C, C++, Python, HTML, CSS, JavaScript, MATLAB, I2C, SPI, UART, USB-PD, USB 3.2