

# KENNY NA

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## EDUCATION

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### University of Waterloo

*Bachelor of Applied Science in Systems Design Engineering*

Waterloo, ON

Sep. 2023 – Apr. 2028

## EXPERIENCE

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### Electrical Engineering Intern

*Waterloo Aerial Robotics Group*

Sep. 2024 – Present

*Waterloo, ON*

- Designed a schematic and PCB integrating a DC-DC switching regulator, LDO, and ExpressLRS-compatible RF transceiver in **Altium Designer** for a lightweight, RC fixed-wing aircraft, supporting 2 motors and 6 PWM outputs.
- Used **LTSpice** and SimSurfing to simulate and design a decoupling capacitor network for the switching regulator.

### Co-Founder

*Waterloo Reality Labs*

Jan. 2024 – Present

*Waterloo, ON*

- Founded the world's **first** collegiate VR/AR hardware design team to develop hackable, DIY XR headsets.
- Led development of Reality From Scratch, a VR headset with an Arduino, IMU, custom housing & optics.
- Managed co-op students' research direction: Quadoo & Zemax OpticStudio software for optics, KiCAD for EDA, and Unity (**Meta XR SDK**) for software implementation. Presented to students on Meta's Visual Turing Test.
- Outreach for **400+** interested students, and raised over **\$5000** in sponsorship value for the team's first term.

### IT Infrastructure & Operations Intern

*Grand & Toy*

Jan. 2024 – Apr. 2024

*Vaughan, ON*

- Managed **250+** computer users through Microsoft **AD** and **GPO**, using **MMC** to manage **DHCP** settings.
- Led deployment project for **100+** custom-imaged laptops using the **Microsoft Deployment Toolkit**.
- Utilized **Trend Micro Apex One** to remediate multiple cases of malware infection on employee PCs.
- Successfully resolved **100+** technical support tickets, contributing to a **27%** increase in employee productivity.

## PROJECTS

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### Reality From Scratch | *Arduino, C++, OpenVR SDK*

- Built an open-source, DIY VR headset with compatible eye-tracking that interfaces with SteamVR.
- Created **OpenVR drivers** for Arduino libraries that translate 3-DoF IMU data to motion vector data.
- Built a real-time camera-based eye tracker with an **ESP32**, **OV2640**, IR LEDs, and open-source tracking software.
- Upgrading to incorporate over **63% higher** horizontal FOV using custom-cut wide fresnel lenses and new displays.

### Testing & QA: RyzenAdj | *Linux, Clover Bootloader, ACPI Machine Language*

- An open-source program to control the power management of Ryzen mobile processors, eventually superseded by Universal x86 Tuning Utility on GitHub (**1.2k stars**).
- Dumped **DSDT** from laptops and edited **ACPI** to modify **AMD STAPM** power limits, sideloading with **Clover**.
- Benchmarked several power targets for the Ryzen 5 2500U using **AMD uProf**, measuring a burst performance increase of up to **67%** and sustained performance of up to **36%**.

### 3D Modelling & Automation | *Blender, Python*

- Designed **10+** 3D scenes with **Blender**, using **Stable Diffusion** for procedural & seamless UV-mapped textures.
- Wrote Python scripts to **automate** importing, scaling and positioning of **30+** random models within a scene.

## TECHNICAL SKILLS

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**Languages:** C/C++, C#, Python, HTML, CSS, JavaScript, MATLAB

**Tools & Platforms:** Git, LTSpice, Unity, Linux, PlatformIO, Android SDK, OpenVR SDK, WSL

**Applications:** Altium Designer, KiCad, SOLIDWORKS, Blender, Figma, VMware, VirtualBox