Kenny Na

Systems Design Engineering
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Experience

UW Reality Labs Oct. 2023 – Present
University of Waterloo *Waterloo, ON*

- Team lead and founder of the University of Waterloo's design team researching **VR/AR** technologies
- Built Reality From Scratch: a custom SteamVR headset with an Arduino **IMU**, custom housing & optics
- Forked **OpenVR drivers** with Arduino libraries for translation from 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
- Explored optics (with Quadoa & Zemax OpticStudio), hardware integration, SLAM/computer vision, software implementation in Unity (**Meta XR SDK**), VR UI/UX, and human-centric design
- Organized outreach (**300+** interested students), member applications, interviews, and raised over **$5000** in sponsorship value for the team's first official term (Quadoa Optical Systems, UWaterloo WEEF, etc.)

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

- Provided on-site and remote technical support for **250+** Grand & Toy employees and customers
- Managed all national G&T computer users via **Active Directory** and Group Policies
- Deployed computers for new employees using custom Windows images and the **Microsoft Deployment Toolkit**
- Used the Microsoft Management Console to manage **DHCP** and users with tokenization access

Projects

DeepFocus (Redux) | *Python, TensorFlow*

- Replicating Meta Reality Labs' DeepFocus research paper, which uses neural networks to help solve the vergence-accommodation conflict in VR headsets by modifying game engine output with realistic defocus blur
- Developing Abstract Art Generator: a script to generate random images with varying properties (objects, colors, specular properties, size, positions) to create a comprehensive dataset for training a convolutional neural network

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

- An open-source program designed to control the power management of Ryzen mobile processors, eventually superseded by Universal x86 Tuning Utility on GitHub **(1.2k stars)**
- Aimed to address early mobile AMD Ryzen thermal and power target issues (with the APU's STAPM) by allowing the user to modify power and temperature limits, increasing performance/power targets from 15W up to **35W**
- Early work consisted of modifying DSDT files for ASUS laptop models and sideloading using Clover Bootloader
- Benchmarked several different power targets (e.g. 15W, 20W) and recorded performance for the Ryzen 5 2500U
- Produced tutorial videos with nearly **200k views** and provided technical support in the RyzenAdj Discord support channel, handling over **100 requests**

3D Modelling & Visual Art | *Blender*

- Designed **10+** 3D art pieces with Blender, utilizing path tracing, composition, texturing, and lighting techniques
- Utilized Stable Diffusion for **procedural & seamless** UV-mapped texture generation

Technical Skills

Languages: C++, C#, Python, HTML, CSS, JavaScript, TeX, MATLAB
Developer Tools: PlatformIO, Android SDK, Git, Unity, Docker, AWS, Azure, Visual Studio Code
Other Applications: Ableton Live, FL Studio, Blender, SOLIDWORKS, Microsoft Office, Jira

Education

University of Waterloo Waterloo, ON
Bachelor of Applied Science in Systems Design Engineering *Sep. 2023 – Apr. 2028*