

# Owen Kwan

San Diego, CA | [unvariant.winter@gmail.com](mailto:unvariant.winter@gmail.com) | [github.com/unvariant](https://github.com/unvariant) | [unvariant.pages.dev](https://unvariant.pages.dev)

## SKILLS

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- **Systems Development:** Kernel driver development, Operating system internals, low-level systems programming
- **Programming Languages:** C/C++, Python, Assembly (x86/ARM), Zig, System Verilog, JavaScript, Bash
- **Tools & Technologies:** Ghidra, Binary Ninja, GDB, Git, Docker
- **Binary Exploitation:** Linux kernel exploitation, Intel SMM, V8, uArch attacks, stack and heap exploitation

## WORK EXPERIENCE

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### Cybersecurity Instructor

June 2023 — July 2023

Cyberclass Camp

*San Diego, CA*

- Taught binary exploitation basics to 50 students through interactive lectures
- Explained concepts such as x86 assembly, buffer overflows, format string vulnerabilities and ROP

## PROJECTS

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### RISC-V CPU

([source code](#))

- RISC-V CPU implementation in System Verilog
- Supports base RV32I instruction set and instruction pipelining
- Tested in Verilator and on the BASYS3 FPGA

### Linux Syscall Table

([source code](#))

- [syscalls.pages.dev](https://syscalls.pages.dev)
- Scrapes kernel source code for syscall definitions, kernel data types, and syscall numbers

### Binary Exploitation Tooling

([source code](#))

- Wrote binary exploitation tooling used internally by top CTF teams
- Includes GDB wrappers, kernel exploitation and ELF modification tools

### Binary Ninja GDB Integration

([source code](#))

- Created Binary Ninja plugin that exports decompiler information into DWARF using gimli
- Allows types, function signatures, local variables, decompilation to be loaded into GDB

### Zig Operating System

([source code](#))

- Developing an x86 operating system written with zig and assembly
- Implemented bootloader supporting FAT32, long mode, VESA graphics

## ACTIVITIES

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### CTF Captain of Les Amateurs

Jan 2022 — Present

- Captain of Les Amateurs ([amateurs.team](https://amateurs.team)), ranked #4 US, #33 global on CTFTIME in 2024, #4 US, #42 global in 2023
- Organized AmateursCTF 2023 and 2024, with 1000+ teams solving at least one challenge and \$2000+ in cash prizes
- Qualified for DiceCTF Finals 2024, CSAW Finals 2023 and 2024

### .,,., Academic CTF Team

2023 — Present

- Ranked 1st in the US and 13th globally on CTFTIME for 2024
- Won corCTF 2024, LakeCTF 2024, BuckEyeCTF 2024

### Friendly Maltese Citizens

2023 — Present

- Ranked 2nd globally on CTFTIME for 2024
- DEFCON 32 finalist, HITCON 2023 and 2024 finals 1st place, 0CTF 2024 1st place, R3CTF 1st place

## EDUCATION

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### Canyon Crest Academy

San Diego, CA

Cumulative GPA: 3.87/4.0

Aug 2021 — May 2025