Nicholas Tang

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Portfolio — GitHub — LinkedIn

Summary

Computer Science student (GPA 3.9) with hands-on experience in embedded systems, physics-based simulation, and teaching. Skilled in C/C++, Python, and system-level programming. Fascinated by the intersection of computing, aerospace, and physics, with experience spanning NASA sustainability infrastructure, CAN bus systems, and cloud/wind pattern tracking on Jupiter.

Education

UC Santa Cruz Sept 2024 – Jun 2027
B.S. Computer Science with Electrical Engineering Minor GPA: 3.9
Relevant Coursework: Data Structures & Algorithms, Parallel & Concurrent Computing, Computer Systems & C Programming, Differential Equations

Foothill High School Aug 2020 – May 2024
CA State Diploma GPA: 4.2
AP Physics C: Mechanics (5), Electricity & Magnetism (5)

Experience

Lead Systems Engineer — NASA's NPWEE Program June 2025 – Aug 2025
- Worked on mid-air battery swap infrastructure for electric planes.
- Spearheaded design and writing for the final proposal of 7 pages.
- Researched airspace management and aviation systems; workforce development program.
- Collaborated on a team of 12.

Software Engineer, Telemetry/Throttle Control — Formula Slug, FSAE (C++) Sept 2024 – Present
- Designed and implemented software handling communication at 500 kHz over CAN bus.
- Developed tooling to test hardware/software; collaborated with team of ∼100.

Instruction Officer — Google Developer Groups on Campus Mar 2025 – Present
- Increased attendance by 30% in Data Structures & Algorithms sessions.
- Planned and hosted workshops; implemented participation-boosting initiatives.

Vice President & Coding Branch Leader — BOBTutor 2021 – 2022
- Organized and led 3 coding programs; mentored 5 new team members.
- Coordinated schedules and developed resources to streamline teaching.

Projects

Planetary Cloud Tracking Research (Python, CIV/ACCIV/OFM) Jun 2025 – Present
- Working under Professor Zhang
- Exploring computer vision algorithms to track wind patterns on Jupiter and other planetary atmospheres.
- Studying implementation details of CIV, ACCIV, and Optical Flow Methods.

WindowWise (Node.js, Python) Oct 2024
- Enables passive cooling systems instead of HVAC by solving heat equation
- Optimizes climate control while reducing energy waste by 100%.

Three-Body Problem Simulator (Python) 2025
- Built a numerical physics engine simulating gravitational interactions of three bodies in 2D.
- Implemented ODE solvers and visualization of orbital trajectories.

Ray Tracing in One Weekend (C++) 2025
- Implemented a physically-based rendering engine in C++.

Leadership & Activities

Formula Slug — Software + Firmware Engineering Member
Association for Computing Machinery (ACM) — Member
Google Developer Groups on Campus — Instruction Officer, Workshop Organizer

Skills

Languages: Python, C/C++, Java, C#, Node.js
Tools: Linux, Git/GitHub, GNU Make, Valgrind, Docker
Languages: English (Fluent), French (Conversational), Cantonese (Spoken)