Codey Sun

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EDUCATION

Stanford University	May 2026
Master of Science, Electrical Engineering	GPA: 4.00
The University of Texas at Austin	May 2024
Bachelor of Science, Electrical and Computer Engineering	GPA: 4.00

Relevant Coursework: 3D/4D Foundation Models, Computer Vision & Graphics, Robot Perception, Operating Systems, Computer Architecture, Virtual Reality, Animation & Simulation, Deep Reinforcement Learning

WORK EXPERIENCE

Roblox, *Software Engineering Intern* | *C++, Lua*   Summer 2025
- Designed a Universal Aim Assist API for the Roblox game engine, bringing accessibility to **8 million+** daily users
- Conducted public user studies with **167 data entries** to maximize fairness, game feel, and ease-of-use
- Prevented cheating and exploits by implementing server-authoritative behavior into the API's data model

Amazon, *Software Engineering Intern* | *C, Python, Java*   Summer 2022/2023
- Developed embedded C reference firmware to demo FreeRTOS with MQTT & TLS libraries to 6 vendors
- Automated the provision of **800,000+** devices to AWS IoT and accelerated manufacturing
- Developed the hardware abstraction layer for an automated Wi-Fi setup feature affecting **38 million** devices
- Upleveled application, framework, and driver code from FireOS 6 (Android Nougat) to FireOS 7 (Android Pie)

RESEARCH / PUBLICATIONS

Stanford University | *PyTorch, GenAI*   Sept 2024 – Present
- Developed a locally-controlled 3D asset generation model using ControlNet and multi-view image diffusion
- Embedded part-level language features into 3D scenes for editing interactable environments

The University of Texas at Austin | *PyTorch, C++, CUDA, OpenCV*   Aug 2022 – Aug 2024
- **(IROS 2024)** Published a multi-modal SLAM algorithm using 3D Gaussian splatting to create photorealistic maps
- Achieved **3x** reduction in tracking error and **5%** increase in image quality over state-of-the-art 3DGS SLAM
- **(PLANS 2023)** Published a SLAM algorithm for open-world AR/VR, coupling GNSS and IMU for **cm accuracy**
- Analyzed 6G bandwidth requirements for collaborative mapping and cloud offloading of bundle adjustment

PROJECTS

VR Headset for Real-Time Scene Annotation | *OpenGL, Unity, PyTorch*   Mar 2025 – May 2025
- Built a 6-DoF VR headset from scratch with foveated stereo rendering and fused lighthouse + IMU tracking
- Created a VR app for real-time interactive scene segmentation and editing using server-hosted AI models

Math Reasoning LLM with RLHF | *vLLM, PyTorch*   Mar 2025 – May 2025
- Fine-tuned a 0.5B language model to achieve **93% accuracy** on the Countdown math reasoning task
- Applied SFT, expert iteration, curriculum learning, REINFORCE Leave-One-Out, and test-time optimization

Minecraft with Rigid Body Physics Simulation | *TypeScript, OpenGL*   Jan 2024 – May 2024
- Recreated Minecraft with procedural world generation, Perlin noise shaders, and portals using OpenGL
- Developed Verlet integration library to implement 3D rigid body physics simulation for an interactive world

SKILLS

Technical Skills: PyTorch, OpenCV, OpenGL, ROS, CUDA, Git, Linux, Docker, AWS, Data structures & algorithms
Programming Languages: C, C++, Python, MATLAB, Java, Verilog, Assembly, LabVIEW, TypeScript, Lua