Codey Sun

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EDUCATION

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

Relevant Coursework: Adv. Computer Vision, Computer Graphics, Aerial Robotics, Statistical Estimation Theory, Operating Systems, Embedded Systems, Computer Architecture, Algorithms and Data Structures

EXPERIENCE

Visual Informatics Group @ UT Austin, *Undergraduate Researcher* | *PyTorch, CUDA* Aug 2023 – Aug 2024
- Published a real-world 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

Amazon, *Software Development Engineering Intern* | *C, Python* May 2023 – Aug 2023
- Developed embedded C reference firmware to demo FreeRTOS with MQTT & TLS libraries to 6 vendors
- Wrote Python scripts to automatically provision **800,000+** devices to AWS IoT and accelerate manufacturing

UT Austin Radionavigation Lab, *Undergraduate Researcher* | *C++, Python, OpenCV* Aug 2022 – May 2023
- Published a bundle adjustment SLAM algorithm for AR/VR in OpenCV, coupling GNSS and IMU for **cm accuracy**
- Analyzed 6G bandwidth requirements for collaborative mapping and cloud offloading of bundle adjustment

Amazon, *Software Development Engineering Intern* | *C, Java* May 2022 – Aug 2022
- 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)

PUBLICATIONS

MM3DGS SLAM: Multi-modal 3D Gaussian Splatting for SLAM Using Vision, Depth, and Inertial Measurements. **L. C. Sun**, N. P. Bhatt, J. C. Liu, Z. Fan, Z. Wang, T. E. Humphreys, U. Topcu. *IEEE/RSJ IROS 2024* ***Oral Pitch Finalist***.

Robust Absolute Headset Tracking for Extended Reality. R. M. Tenny, **L. C. Sun**, A. Duru and T. E. Humphreys. *IEEE/ION PLANS 2023*.

PROJECTS

LiteGaze: Real-time Eye Gaze Correction | *PyTorch, OpenCV* Aug 2023 – May 2024
- Architectured a lightweight U-Net CNN model that redirects eye gaze in real-time over a virtual call
- Collected a synthetic dataset of 100,000+ labeled images of eyes and gaze directions to train the model

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

Stylized Dynamic NeRFs | *Python, PyTorch* Jan 2023 – Apr 2023
- Implemented neural radiance fields with deformation networks that capture time-varying dynamics in scenes
- Architectured PyTorch training to apply VGG style features onto the NeRF for view and time-consistent style

SKILLS

Technical/Software Skills: PyTorch, OpenCV, OpenGL, ROS, CUDA, CAD, PCB design, Git, Linux, Docker, AWS
Programming Languages: C/C++, Python, MATLAB, Java, Verilog, Assembly, LabVIEW, TypeScript