

Amadeo Lee

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EDUCATION

Georgia Institute of Technology

2024 – Current

Electrical Engineering, GPA 4.0

WORK EXPERIENCE

Skydio – FPGA Hardware Engineer (Internship)

May 2026 – Aug 2026

- MIPI hardware aggregation with FPGA
 - Architected a high-speed **MIPI aggregation pipeline** in **Verilog RTL**, merging 3 camera streams into a single 10 Gbps output with virtual channels to **offload downstream ISP bandwidth**.
 - Designed an 8-layer PCB in **Cadence OrCAD** integrating **2 Lattice FPGAs** to implement the **MIPI aggregation RTL**, interfacing with 6 MIPI camera streams to enable the **low-latency multi-camera data transport**.

Tesla – Electronics Design Engineer (Internship)

May 2025 – Dec 2025

- Megapack 3 Fiber Networking Module
 - Performed full schematic capture and PCB layout in **Altium** for a **10-layer PCB**, incorporating **high-speed impedance-controlled traces** for **10Gbps Fiber SFP+**, **QSGMII**, **SGMII**, **RGMII**, and **Gigabit Ethernet**.
 - Led validation of high-speed signals using **real-time eye-diagram analysis**, optimized **resonant power-supply thermal performance**, and characterized **10Gbps L1/L2 fiber network throughput** using network testers.

HOPE Technik – Electronics Design Engineer (Full Time)

2021 – 2023

- ERP2
 - Designed an end-to-end **RFID transceiver** front end, including antenna PCB, signal amplification chain, and Schmitt-trigger-based signal conditioning to convert received RF data into **FPGA-processable digital signals**.
 - Wrote **VHDL RTL** for **Xilinx Zynq-7000** programmable logic to process RFID data and interface with the ARM-based Linux subsystem, enabling **real-time deterministic hardware signal processing**.
- Singapore 6th Generation Firefighting vehicle
 - Performed **schematic capture** and **PCB layout** for a custom CAN-BUS to USB converter, enabling data communication between firefighting vehicles and the base station.
 - Wrote **STM32** microcontroller firmware in **C** to **encode CAN bus data frames onto USB packets**, improving real-time monitoring and decision-making for the firefighting team

PERSONAL PROJECTS (www.amadeolee.com)

FPGA Full HD (1920x1080) Hardware Video Interceptor

2024

- Designed and fabricated a **custom 6-layer Xilinx FPGA PCB**, utilizing **high-speed differential impedance-controlled trace routing** and **precise length matching on the DDR3/LVDS bus**
- Implemented in **VHDL** the capability to **intercept 8x LVDS differential signals** between the GPU and a Full HD (1920x1080) display; enabling **seamless capture of HDCP content directly in hardware**

FPGA real-time hardware streamer from SD-card to LVDS display

2023

- Leveraged FPGA resources such as (FIFO, BRAM, LUT, DDR3 RAM and LVDS differential transceivers) to create a **low latency hardware streamer** – fully written in **VHDL**
- Wrote **custom SD Card Controller** and **LVDS Display Controller** in **VHDL** to achieve low-latency communication

Linear Motor + BLDC Controller

2022

- Built a Linear Motor using **bespoke Neodymium Magnets** and **hand-wound 3-phase motor coils**
- Implemented **Field-Oriented-Control (FOC) algorithm** on an STM32 microcontroller, enabling **precise high-speed torque and position control** of the linear motor.

30-min Fast Charging Powerbank

2020

- Designed a PCB with a **99% efficient buck-boost converter**, enabling **rapid 30-minute charging** of a power bank via **USB-C Power Delivery (100W)**.

COMPETITIONS

1st Place Nationwide for Singapore's Category D1 Semi-Autonomous Competition

2021

- Created an innovative **Autonomous Drone with Omni-directional Mecanum car**, capable of creatively performing diverse tasks, including retrieving payloads and transporting them to specified destinations

Project of the year in Element14 International Annual Competition

2020

- **Built an electric go-kart single-handedly** by integrating various engineering techniques such as **3D printing**, **CNC machining**, **FEA stress simulation** and **biometric authentication systems**

SKILLS

Skills: Programming (Objective-C, C++, C, VHDL, Verilog), CAD&CAM (Fusion 360, Solidworks), 3D Printing, PCB Design (Altium, KiCAD, Cadence OrCad), Drone Photography