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DANIEL CHEN

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EDUCATION

University of California San Diego   San Diego, CA   **Sep 2021 – March 2025**
- **B.S. in Electrical Engineering, GPA: 3.8**
- **Coursework:** Digital Design, Advanced Digital Design Project, Analog Circuits, Signals, Linear Electronic Systems, Control Systems, Differential Equations, Linear Algebra, Vector Calculus, Linear and Non-linear Optimization, Object-Oriented Programming, Data Structures, Algorithms, Software Development, Machine Learning, Fluid Dynamics

University of California San Diego   San Diego, CA   **March 2025 – June 2026 (Expected)**
- **M.S. in Electrical Engineering,** depth in Intelligent Systems, Robotics & Control

LANGUAGES AND TECHNOLOGIES

- **Languages and Libraries:** Verilog, SystemVerilog, UVM, C++, Python, Java, TCL, MATLAB, FreeRTOS, Formal Verification, Digital Systems Design, Testing and Validation, Linux, SPI, I2C, Ethernet, IOLink, CAN Bus, UART
- **Software and Tools:** Intel Quartus Prime, ModelSim RTL, Xillinx Vivado, PSpice, Fusion 360, EAGLE, Cadence Allegro, Studio5000, Ignition, SolidWorks, Oscilloscope, Multimeter

EXPERIENCE

Avionics Lead   SEDS Rocketry at UCSD, San Diego   **December 2021 – Present**
- **Led the 6-member** avionics team for *Riptide*, a bi-propellant, self-landing sounding rocket, focusing on **full hardware design** and **control implementation.**
- Coordinated integration of throttle, gimbal controllers, EPS, and actuators, performing Hardware in Loop (HIL)
- Cold-Flow and Hot-fire **tested and validated avionics systems** at FAR in the Mojave Desert under **high-stress conditions.**
- Designed a modular sensor PCB in **Fusion** for **40+ vehicle sensors**, including thermocouples, pressure transducers, GPS, and altimeters, using amplifiers, **ADCs**, and **SPI/I2C** protocols.
- Integrated Teensy microcontroller on sensor board using FreeRTOS in ESP-IDF to transfer sensor data over separate **mission-critical and non-critical CAN buses**. Assembled, tested, and verified PCB using **oscilloscope and multimeter**.

Avionics Electrical Engineering Intern   Aerojet Rocketdyne, Los Angeles   **June 2024 – September 2024**
- Performed **Functional Acceptance Testing** on a **Valve Driver Assembly PCB**, executing rigorous **thermal and vibration laboratory tests** to ensure compliance with military standards and suitability for space deployment.
- Developed the **High Voltage Initiator** Production Specification, coordinating with cross-functional engineering teams.
- **Led the Change Control Board (CCB) meeting** to finalize production-level specifications and presented to Chief Engineer.

Manufacturing Controls Intern   Tesla, Fremont   **January 2024 - June 2024**
- Led the overhaul of the Model Y 1R Seat Assembly line, **resolving Ethernet downtime** and improving network reliability, saving **$60,000** by mapping and planning the installation of **60 Ethernet devices** and 300 I/O modules.
- Designed and implemented a **Badge-Enabled Safety System PLC Panel** for a Factory Machine Shop, **automating tool shutdown** after set idle time and integrating with **13** machining tools for **enhanced safety and operational efficiency.**
- **Wired** Seat Function Tester panels in-house for new vehicle model seat testing. **Designed a custom PCB** adapter module for precision power resistor and implemented dual powering and testing methods for enhanced efficiency.

Electrical Engineering RnD Intern   HP Inc, Corvallis   **June 2023 - December 2023**
- Conducted **in-depth circuit analysis** on **80** returned printhead control boards, diagnosing and repairing for internal use.
- Enhanced defect detection by **upgrading testing scripts** from **TCL** to **Python**, adding new failure mode detection cases from **Failure Tree Analysis**, which improved **defect detection rate by 25%** and contributed to more efficient Functional Circuit Testing, advancing manufacturing processes.
- Reviewed **FPGA** documentation, including **Finite State Machine (FSM)** diagrams and I/O configurations, to trace functionality and validate performance during failure analysis, directly contributing to improved board validation processes.

PROJECTS

- **SHA-256 Bitcoin Hash**: Implemented **SHA-256** in **Verilog** using **Quartus Prime** to create and validate blocks in a simulated Bitcoin blockchain, ensuring data integrity and immutability through cryptographic hashing. Utilized nonce-based difficulty adjustment and tested functionality with **ModelSim RTL**.
- **Algae-Cleaning Robot**: Designed a computer vision-guided boat with a custom motor driver PCB in **EAGLE**, ESP32-CAM PCB, and gear-driven propeller system in **Fusion** to autonomously navigate and remove algae from stagnant water.