Daniel S. Castle

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WORK EXPERIENCE

Apple Inc. | Currently: Austin, TX; Previously: Cupertino & San Diego, CA

Data Center Firmware Engineering Program Manager — May 2024 – Present

- Drive schedules, budgets, and meetings between internal & external teams as the engineering program manager (EPM) for all firmware package releases on sustaining (Intel x86) data center programs
- Track features & issues for each release milestone, identify blockers, and determine mitigation plans in coordination with the development, storage, network, system validation, and internal tools teams
- Represent the firmware team in cross-functional meetings, functioning as a buffer between the engineering team & the rest of Apple, thereby allowing the engineering team to focus on solving engineering problems
- Run core team meetings to align key stakeholders, communicate status, and update management
- Publish and maintain documentation in support of each firmware package release
- Provide guidance on quotes related to firmware NRE (non-recurring engineering) and licensing fees

Mac Hardware Engineering Program Manager (Internal Rotational Program) — Jan. 2024 – May 2024

- Led Apple's online implementation of new US regulation affecting coin and button cell batteries across Mac, AirPods, and AirTag in coordination with Legal, Safety, Ops, Product Marketing, and AppleCare
- Carried out a mini-build at a factory in China by gathering build rules from cross-functional teams, creating the build matrix, and building the factory input plan (micro-schedule) in coordination with in-region teams
- Drove 31 main logic board and flexible board releases across the M4 Macbook Pro lineup & Mac Studio

Imaging & Sensing Incubation, Hardware Systems Electrical Engineer — Feb. 2021 – Jan. 2024

- Apple's Depth & AR/VR algorithms teams require the hardware capabilities of future shipping products in coordination with ground truth systems in order to build custom datasets with real-life user data that both verify synthetic data and ensure machine learning models are ready for planned product roadmaps.
- I owned the electrical engineering plan for these hardware platforms across the full product lifecycle, building these systems in close collaboration with firmware, software, and product design teams while managing local contract manufacturers (CMs) for assembly and test.
- Key contributions were electrical system architecture, design trade-offs amid ambiguity, schedule planning, risk highlighting, mitigation management, and slide deck presentation and creation for executive review.
- Proficient in the surface mount technology (SMT) assembly process for flexible printed circuits (FPCs), ensuring high-quality fabrication with 21 different high-speed FPCs designed, validated, and shipped.
- Supported shipping algorithms: iPhone & iPad's FaceID, LiDAR, & Memoji, and Apple Vision Pro's Hands/Face/Body Tracking for Persona (FaceTime while wearing the headset) & Capture and Relive (stereo video captured from the main cameras is reimagined from the perspective of the user's eyes)

iPhone Hardware Systems Electrical Engineer — Jan. 2020 – Feb. 2021

- The iPhone HW Systems EE team is responsible for all system-level printed circuit boards (PCBs) ranging from flexible PCBs (FPCs, or simply flexes) to the main logic board (MLB) for every iPhone.
- My role expanded from owning the VIS & IR camera flexes for the iPhone 12 Mini, including schematics, layout, subsystem coexistence, and validation, to eventually owning the same for all 12 flexes within the phone as builds progressed, working remotely with factories in China.
- After first customer ship (FCS) of the Fall 2020 lineup, I worked early field failure analysis (EFFA) of returned iPhones, triaging incoming issues and finding solutions for how the first mass-production iPhone 12/Mini/Pro/Pro Max phones break after time spent in customers' hands.

iPhone Hardware Systems Integration Co-op — Jan. – Aug. 2019

- Completed extensive work on camera subsystem coexistence within the iPhone 11 Pro & Pro Max, working with cross-functional teams to debug timeline-critical hardware & firmware issues
- Designed an interposer board to break out iPhone MLB signals without needing to rework any boards for debug of returned production iPhone 11 Pro & Pro Max phones after first customer ship (FCS)
- Performed iPhone subsystem signal integrity and power integrity validations to ensure reliable operation over voltage, temperature, and component manufacturing variability
- Schematic capture of a test board to characterize audible noise from singing ceramic capacitors
- Developed Python scripts for CPU thermal and peak power models during camera streaming

RKF Engineering Solutions, LLC | Bethesda, MD
RF Communication & Systems Engineering Co-op Jan. – June 2018

- Completed due diligence on a proposal for NASA to secure additional government funding for future satellites through a feasibility study on the inadequacies of using present commercial satellite operators
- Modeled RF interference between cell towers on Earth's surface at frequencies of 0.1–50 GHz to monitor frequency band sharing and worst-case performance of terrestrial cellular services

TECHNICAL PROJECTS

- **Led** the development of a "Keurig for Cold Brew" 3-minute coffee machine for fast coffee needs
  - **Managed** 2 clients, a 7 person multidisciplinary engineering team, and a $5K budget
  - **Delivered** a food-safe product that could be demo'd to investors or enjoyed at home
- **Built** a thruster control board for 3 micro-Cathode Arc Thrusters for CubeSat propulsion
- **Made** a plasma arc speaker to be mesmerized while playing high fidelity music from a laptop
- **Designed** the printed circuit board (PCB) for sensors, control, and power of a custom RC car
- **Additional information** (demos and videos) available at **www.danielscastle.com/portfolio**

EDUCATION

Northeastern University, Boston, MA December 2019
B.S. Electrical Engineering, Minor in Entrepreneurial Engineering, *magna cum laude* GPA: 3.82
Honors: University Honors Program, Honors Early Research Award, National Merit Finalist Scholarship