

IAN C. HARTWIG

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San Francisco, CA

EDUCATION:	DEGREE	SKILLS
May 2016	Carnegie Mellon University M.S. Electrical & Computer Engineering Select courses: <ul style="list-style-type: none">18-623 Analog Integrated Circuits18-625 Mobile and Server Product Design18-649 Distributed Embedded Systems	<ul style="list-style-type: none">ECAD – Orcad, Allegro, KiCAD, Eagle, AltiumEE Power – E-Load, Diff-Probe, Thermal Chambers, LVDC, 3-Phase ACEE Protocols – I2C, SPI, USB cert., JTAG, I2S (Audio Precision)EE Rework – for 01005+, QFN, BGA, CSPSystem Simulation – Spice, System VerilogProgramming – C, Python, Linux / Bash, JavaData Science – Pandas, Tableau, SalesforceWeb – HTML, CSS, JS, SQL, PHPMCAD – AutoCAD, Solidworks, Fusion360Machining – Metals & Plastics, Mill, Lathe, Laser Cutting, CNC Router
May 2015	Carnegie Mellon University B.S. Electrical & Computer Engineering Select courses: <ul style="list-style-type: none">18-578 Mechatronic Design18-474 Embedded Control Systems15-410 Operating Systems	
Aug. 2011		

EXPERIENCE:	INDUSTRY	ACADEMIC
Present	Hardware Engineer Pure Storage, Mountain View, CA <i>FlashArray fault-tolerant x86 server design team</i> <ul style="list-style-type: none">Design lead on new NVMe productAnalysis of future memories & interfacesMultiphase Buck Validation for Intel CPUsDesign Review & Validation for PCIe 3, NVMe, RoCE 2, 10G+ Ethernet, 12G SASField Failure Analysis for exec. reporting leveraging Python/Pandas, Salesforce, JIRA, face-to-face across orgs. and datasets for all FlashArray HW esp. Fibre Channel & PSUs.	FIRST Robotics Engineering Mentor FRC 5026, Burlingame, CA <i>Guide dynamic group of 30+ high school students in mechanical and electrical design process of custom 150 lb. robot in 6 weeks.</i>
July 2016		Embedded Real Time Sys. (18-349) TA ECE Department, CMU <ul style="list-style-type: none">Built labs and exams focused on ARM in CDesigned lab kit HW around Raspberry PiImplemented check-in workflow on private Gitlab instance github.com/ihartwig/raspberrypi-debugger github.com/ihartwig/rpi-labio
Aug. 2015	Hardware Engineering Intern Pure Storage, Mountain View, CA <ul style="list-style-type: none">Developed tools to validate and margin first-gen NVMe FlashModule designsSMD rework, measurement, threaded FW development in C, and test scripts in Python	Embedded System Design (18-549) TA ECE Department, CMU <i>Mentored several capstone design projects. Created coursework in HW design and Eagle.</i>
May. 2015		AB Tech Executive Board Student Life, CMU <i>Live audio engineer and electrician for student-run entertainment productions company.</i> <ul style="list-style-type: none">2-64 ch. Analog or Dante Networked PAs100-600A 3-phase AC power systemsreviewing capital purchases and training
Aug. 2014	Hardware Engineering Intern Apple, Cupertino, CA <i>iOS Device Accessories</i> <ul style="list-style-type: none">Drove SCH & PCB for dev. kits in lockstep with engineers on Battery Case and AirPodsWorked closely with project management and mechanical, layout, RF, and SI engineers to meet tight deadlinesSparked test equipment automation collaboration in Python to save engineer time	
Jan. 2014		

PROJECTS:		
May 2016	Ace Monster Toys RFID Entry <i>Extended RFID locks at hackerspace in Oakland, CA. Custom microcontroller HW and SW with power relays and USB data.</i> github.com/ihartwig/amtdoor3	Robotic Buggy <i>Built a self-guiding, gravity-powered vehicle with the CMU Robotics Club. Embedded SW, HW system integration, and power delivery HW.</i> github.com/CMU-Robotics-Club/RoboBuggy upverter.com/ihartwig/d0e344870ae6db06
Jan. 2014	github.com/ihartwig/amtdoor2	