Brandon Joel Gonzalez – Curriculum Vitae

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Career Objectives

Interested in the development and innovation of electronics engineering and related fields. Pursuing a doctorate in electrical and computer engineering, with a long-term goal of teaching and research at a university. Love of learning and helping guide others to their fullest potential.

Education

Carnegie Mellon University — College of Engineering (CIT)

- Ph.D Student in *Electrical and Computer Engineering* — August 2021 - Present
  - Research Advisors: Dr. L. Richard Carley
  - Research Interests: embedded systems, electronics design, RF engineering

University of Pennsylvania — School of Engineering and Applied Science (SEAS)

- M.S.E. in *Robotics* — May 2021
- B.S.E. in *Computer Science*, minor in *Mathematics* — December 2019 — Cum Laude

Experience

Teaching Assistant — CMU CIT and UPenn SEAS

- TA for the Department of Computer and Information Science (CIS), Department of Electrical and Systems Engineering (ESE), Department of Electrical and Computer Engineering (ECE)
- Responsibilities include: lecturing, recitations, lab and review sessions, lab and office hours, explanation videos, forum monitoring, staff meetings, grading, project advising, development of course labs, projects, and curricula
- Semesters as head TA denoted with * and semesters online denoted with ^
- TA history:
  - CIT — 18-429/729: *Board-Level RF Systems for IoT* — Fall 2022
    - Experimental laboratory course exploring RF engineering concepts, including transmission lines, antenna design, MIMO, SDR, and beamforming
  - SEAS — CIS240/CIT593: *Introduction to Computer Systems* — Fall 2018, Spring 2019, Summer 2019^
    - Introductory systems course covering topics from CMOS logic gates to architecture design to operating systems programming
  - SEAS — CIS380/548/CIT595: *Operating Systems* — Fall 2019, Spring 2020*^, Summer 2020*^
    - Advanced systems course exploring design and implementation of operating systems, primarily Unix-based, in the C programming language
  - SEAS — CIS371/501: *Computer Architecture* — Fall 2019, Spring 2020^
    - Advanced systems course exploring design and optimization techniques in modern computer architecture, with labs in Verilog
  - SEAS — ESE190/M&TSI: *Introduction to Hardware/Software Lab* — Spring 2019, Summer 2021*^
    - Introductory laboratory course exploring the Arduino platform, primarily for students without engineering background
  - SEAS — ESE350/519: *Embedded Systems Lab* — Fall 2020^, Spring 2021*^
    - Advanced laboratory course covering the foundations and design of embedded systems platforms, across both hardware and software levels

- SEAS — ESE450/451: *ESE Senior Design* — Fall 2019, Spring 2020^, Fall 2020*^, Spring 2021*^
  - Two-part senior capstone project series for students in the Electrical and Systems Engineering department and related majors

Skills and Coursework

Languages: Native in English, fluent/heritage in Spanish, elementary in French
Key Courses Taken: Operating Systems, Computer Architecture, Embedded Systems, Mechatronic Systems, Signal Processing, Control Systems, Digital/Analog/RF Electronics
Technologies Learned/Utilized:

- Software
  - Programming languages including C, C++, Python, MATLAB
  - Software development tools including Simulink, ROS
  - Hardware description language tools including Verilog, Vivado
  - Operating systems tools including Unix shells, FreeRTOS
- Hardware
  - Microcontrollers including Arduino, Espressif
  - Computing boards including Raspberry Pi, Nvidia Jetson
  - IC design tools including Cadence, SPICE
  - PCB design tools including Altium, EAGLE
  - CAD tools including Fusion 360, Solidworks

Activities and Interests

- SEAS Orientation Peer Adviser for Class of 2022 (CIS) and Class of 2023 (CMPE)
- Head of Hardware team for PennApps hackathon from Spring 2019 to Spring 2021, organized with Major League Hacking (MLH)
- Student member of the ECE Diversity, Inclusion, and Outreach Committee
- Build18 Officer for the 2023 Season
- 2022-23 ECE Representative of TechSpark Student Committee
- 2022-23 CMU Robotics Club Graduate Student Officer
- 2022-23 IEEE CMU Chapter Graduate/Research Committee Chair
- 2022-23 Officer of the Eta Kappa Nu (HKN), Sigma Chapter at Carnegie Mellon University

Awards and Recognitions

- Recipient of the 2017 Penn Undergraduate Research Mentoring (PURM) Grant
- Recipient of the 2018 Penn Engineering Exceptional Service Award
- Recipient of the 2019 Littlejohn Scholars Summer Research Grant
- 2019-20 J.P. Eckert Fellow
- 2020 inductee of the CIS TA Hall of Fame
- Recipient of the Summer 2020 TA Award for Excellence in Student Support with Distinction
- 2021 ESE Diversity, Equity, and Inclusion Fellow
- Honorable Mention for the 2021 Penn Engineering Outstanding Teaching Award
- Carnegie Institute of Technology Dean's Fellow
- 2022 inductee of the Eta Kappa Nu (HKN), Sigma Chapter at Carnegie Mellon University