Jonathan Duffy

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Experience

Research Scientist, *Northrop Grumman*, Redondo Beach, CA   **August 2021 to Present**

-Develop tools, test equipment, and manufacturing methods needed for novel materials, devices, and applications

-Projects have included work in nanomaterials, microfluidics, metamaterials, and micromachining

Test Set Electronics Engineer, *Northrop Grumman*, Redondo Beach, CA   **July 2020 to August 2021**

-Primary design engineer for three test sets, covering DC power, RF, and digital requirements

-Defined requirements, designed, procured parts, assembled, and debugged test sets

Education

Carnegie Mellon University, Pittsburgh, PA   **Graduated May 2020**

-Bachelor of Science, Electrical and Computer Engineering   **GPA: 3.8**

Intern, *MIT Lincoln Lab*, Lexington, MA   **May 2018 to December 2018, May 2019 to August 2019**

-Designed and prototyped novel mechanical and electrical systems for multirotor UAVs

-Miniaturized and ruggedized various laboratory sensors and equipment for field use

-Designed and built a smaller, cheaper, and modular version of the LLRISE radar system: jeduffy.site/projects#LLR

-Built, programmed, and implemented controls for new configurations of multirotors: youtu.be/5DC4_tdu6aM?t=135

Intern, *SpaceX Space Launch Complex 40 & 39A*, Cape Canaveral Air Force Base, FL   **August 2017 to December 2017**

-Tested, debugged, and coordinated installation of launch pad command and control (C2) equipment

-Designed, tested, and implemented new sensors, controls, and equipment for the launch pad

Intern, *NASA Jet Propulsion Laboratory*, Pasadena, CA   **August 2016 to December 2016, May 2017 to August 2017**

-Designed, programmed, and tested data acquisition avionics for a propellant testbed sounding rocket

Extracurriculars

Co-author, *In-Sight, SCS Independent Research Project*   **April 2018 to May 2019**

-Designed and built electronics for a novel device for blind navigation: jeduffy.site/?attachment_id=462

Electronics Team, Carnegie Mellon Rocket Command   **January 2018 to December 2018**

-Designed and built avionics for data collection and processing aboard a sounding rocket

Controls Team, *Cyclone Space Mining*   **September 2015 to May 2017**

-Built electronics for five mining robots for the NASA Robotic Mining Competition jeduffy.site/rmc-gallery/

-Designed assembled, programmed, and debugged power and control boards and wiring harnesses

Member, *Critical Tinkers*   **September 2015 to August 2016, January 2017 to August 2017**

-Designed, built, and programmed a novel design of multirotor: youtu.be/KTGGI3016OA and youtu.be/Wt8pXwj-qZc?t=191

-Built and programmed networked lights for the ISU snare line: youtu.be/kqavQ3lXFC8?t=58

Skills and Experience

-Programming experience in **C, C++, Java, Python, assembly (x86, ARM), MATLAB**, and **LabView**
-PCB design of analog, digital, and RF boards using **Altium Designer, Xpedition,** and **KiCad**
-Modeling, assembly, drawing, rendering and simulation with **Solidworks, NX, SE, Catia, Inventor,** and **Blender**
-Regular Linux use in **Ubuntu/Mint, CentOS, Red Hat, Arch, Debian**
-Designing, building, and testing analog, digital, and RF circuits
-Experience building and debugging large-scale DAQ and Command and Control (C2) Systems
-HDL design with **FPGA** and CPLD (**Verilog** and **VHDL**, and using **DDR, SERDES / GTP, Ethernet MAC / PHY**, etc.)
-Performing analog, digital, and RF simulation (**HFSS, FEKO, HyperLynx, LTSpice, Logisim**)

Holding DoD TS clearance, as of 04/15/24