Pádraig Lysandrou

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Last Updated on 4th September 201

EDUCATION

CORNELL UNIVERSITY
BS in Electrical and Computer Engineering
May 2018
Minor: Aerospace & Archaeology

COLORADO BOULDER
PhD Student in Aerospace Engineering
Advised by Dr. Robert Braun
Research in GNC for EDL
MS by Spring '19

COURSEWORK

Adv Spacecraft Attitude Control
Vehicle Guidance Systems
Optimal and Nonlinear Control
Stochastic Control/Estim.
Theory of Linear Systems
Feedback Control Systems
Spaceflight Mechanics
Spacecraft Tech. Systems Arch.
Mathematical Physics
Digital Communication
Embedded Systems
Microelectronics

AWARDS

2018: Matthew Isakowitz Fellow
2017: Winner Caltech Space Challenge • MakeMIT Amazon Prize
2015: Hiram Percy Maxim Award
2014: Goldfarb Scholarship

HARDWARE

9 years of rapid prototyping with digital embedded systems and various peripherals

SOFTWARE

> 5000 lines:
Python • Matlab • LaTeX • C/C++
< 5000 lines:
Verilog • HTML • Assembly
Design:
Simulink • Fusion360 • EAGLEcad • Altium • Xpedition
Other:
SVN • Git

OTHER

Director Cornell Maker Lab:
Aug 2016 - May 2018
Extra Class Amateur Radio License

INDUSTRY

SPACEX | Associate Engineer - ADCS | Summer 2018: Redmond, WA
- Designed/built/tested flight software and hardware for star trackers
- Wrote/tested online star tracker debris/moon filter algorithm with flight data
- Performed exploratory star tracker redesign, magnetometer post mission analysis

BLUE ORIGIN | Avionics Hardware Intern | Summer 2017: Kent, WA
- Communication link simulation hardware and software for the New Shepard/Glenn HITL; for all phases and attitudes of flight
- S-band embedded firmware for New Glenn vehicle

URSA SPACE SYSTEMS | Systems Engineer | Aug 2016 – Feb 2017: Ithaca, NY
- Designed avionics architecture for a constellation of synthetic aperture radar imaging satellites
- Held power, communication, and ADCS budgets through spacecraft design phase

SPACEX | Avionics Intern | Dragon Avionics Summer 2016: Hawthorne, CA
- Built/tested TDRS reradiation system for Dragon vehicles. Held CDR with SpaceX and the JPL Deep Space Network. Deployed to launch facilities and used on CRS11, soon for commercial crew systems.
- Built RF signal leveler tool for bit error testing. Tested on Dragon flight hardware.
- Performed Dragon avionics post mission analysis on CRS8 and CRS9

SPACEX | Launch Intern | Summer 2015: SLC39A/40 Cape Canaveral, FL
- Worked on instrumentation, camera, fiber/pad comm systems for Falcon Heavy support. Implemented lightning warning system for all SpaceX sites, replacing NASA system.

PERSONAL PROJECTS AND RESEARCH

Lander: entry, descent,& landing rocket-powered test platform. | '18 - Present
LR101 Lox/Rp1 rocket engine restoration for use | '18
LQG and Convex Optimal Guidance for a Quadrotor| '18
Convex Optimal Rocket Landing Algorithm | '17
from-scratch keyboard with LaTeXbindings in firmware| '18
3DOF Stewart Motion Platform | '17
Quadrotor Flight Computer with PID rate Control| '17
Eleventh Eye: A computer-vision text-to-speech device | '17
Infrared Imaging Agricultural Quadrotor | '15
Linear Magnetic Accelerator, 1.1kJ and 6.7kJ models | '13-'14

ARTIFICIAL GRAVITY CUBESAT | Avionics Lead | Dr. Daniel Selva
Aug 2016 – November 2017 | Ithaca, NY
- Performed full-system, in-house design: power, flight computer/software, ADCS, telemetry to demonstrate controlled artificial gravity with a flexible tether

VIOLET NANOSATELLITE | Avionics Lead | Dr. Mason Peck
Aug 2014 – January 2017 | Cornell University Ithaca, NY
- Held 3 Pre-Integration Reviews and 1 Pre-Ship Review with Air Force Research Lab
- Brought full avionics system to functioning state to be shipped to AFRL
- Worked on hardware and firmware for power, ADCS, CDH, T&C, GPS, and sensors
- Performed Simulated Communications, Charge Cycle, Sensor-suite Checkouts, and full Flat-Sat testing

PUBLICATIONS

Jun '17 – P. Lysandrou et al., Lunarport Concept - A Launch And Supply Station For Deep Space Missions, IAA Symposium, Torino, Italy (Conference)
Apr '17 – P. Lysandrou et al., 2017 Caltech Space Challenge - Lunarport: Lunar Extraction for Extraterrestrial Prospecting, AIAA Space Forum 2017, Orlando, FL (Conference)