

Mark Cutler

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INDUSTRY EXPERIENCE

KITTY HAWK

ENGINEERING LEAD, SPECIAL PROJECT

Jul 2020 – Present | Mountain View, CA

- Leading a small software team designing, implementing, and testing algorithms for novel configurations of electric aircraft

ENGINEERING LEAD, FLYER

Oct 2019 – Jun 2020 | Mountain View, CA

- Led embedded development and avionics
- Performed a safety and hazard analysis (and fixed all associated issues) to move from empirical safety margins to a provably safe system
- Implmented bootloaders enabling fully over-the-air software update capabilities

SOFTWARE AND CONTROLS LEAD, FLYER

Sep 2015 – Sep 2019 | Mountain View, CA

- Built the core software stack, with a particular focus on the controller, comms, and infrastructure code
- Managed and led the software and avionics team (six people)
- Hired and mentored new engineers
- Designed, built, and tested most of the original Flyer electronics (BMS, user interface, and autopilot)
- Filed 20+ patents

EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

PHD IN ROBOTICS AND AUTONOMOUS SYSTEMS

Sep 2015 | Cambridge, MA | GPA: 4.7 / 5.0

Thesis: *Practical Robot Reinforcement Learning through Efficient Simulator Sampling*

Committee: Prof. Jonathan P. How, Prof. Leslie Kaelbling, Dr. Andrea Censi

MS IN AERONAUTICAL AND ASTRONAUTICAL ENGINEERING

Aug 2012 | Cambridge, MA | GPA: 4.7 / 5.0

Thesis: *Design and Control of an Autonomous Variable-Pitch Quadrotor Helicopter*

BRIGHAM YOUNG UNIVERSITY

BS IN MECHANICAL ENGINEERING

Apr 2010 | Provo, UT | GPA: 3.99 / 4.0

SELECTED PATENTS AND PUBLICATIONS

- **M. Cutler**, T. Reichert, J. Jackson, Distributed flight control system. *US 9977432*, May 2018
- **M. Cutler**, Emergency landing using inertial sensors. *US 9639087*, May 2017
- **M. Cutler**, T. Walsh, J. How, Real-World Reinforcement Learning via Multi-Fidelity Simulators. *IEEE Transactions on Robotics*, June 2015
- **M. Cutler**, J. How, Actuator Constrained Trajectory Generation and Control for Variable-Pitch Quadrotors. *AIAA Guidance, Navigation, and Control Conference (GNC)*, 2012

SKILLS

PROGRAMMING

- C++
- C
- Python
- Matlab

TOOLS

- ROS1/2
- Git
- Wireshark
- SolidWorks

HARDWARE

- PCB design
- Board bringup
- Logic analyzer
- Drivers and debugging for ethernet, serial, I2C, SPI
- SMD soldering and rework

VOLUNTEER

THE CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS

VOLUNTEER REPRESENTATIVE

July 2005 – July 2007 | Rostov, Russia

- Provided leadership, development and training for 16 volunteer representatives
- Oversaw volunteer operations in a geographical area covering over 300 miles

INTERESTS

- Ultimate frisbee
- Skiing
- Racquet sports
- Hiking and camping