

Dylan Owens

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Sunnyvale, CA

Education

Massachusetts Institute of Technology
SM in Mechanical Engineering, 4.7 GPA

Cambridge, MA
6/2009

California Institute of Technology
BS in Mechanical Engineering, 3.3 GPA

Pasadena, CA
6/2004

Experience

Saildrone, Inc

Alameda, CA

Chief Technical Officer & Co-Founder

11/2011–9/2014

- Solely designed and created mechanisms, electronics, and software for a 20' autonomous sailboat that traveled 10,000 miles over several months at sea, setting a world record for distance and endurance
- Created mechanical assemblies through concept generation, modeling, CAD, machine drawings, assembly, and testing. Designs included custom bearings, waterproof housings, batteries, and ultra-rugged actuators.
- Developed all aspects of electronics from system level design to soldering. Designs included the battery manager, custom motor controllers, and instrument controllers. Selection and integration of embedded computer, navigation sensors, microcontrollers, and communication modules. Digital and analog circuit design, cable and connector selection, PCB layout, and board manufacture.
- Wrote vehicle operating software, device drivers, and firmware. Code was written from scratch to be small, elegant, without external dependencies, and low-latency. Absolute reliability necessary as software failure would mean loss of vehicle. Created graphical operator interface with vehicle telemetry, marine traffic, weather data, and other situational information shown on a dynamic map.
- Control systems for high-level operation modes and path planning, heading and speed control loops, and low-level actuator control loops. Designed controllers with analytic methods, implemented them in software, and validated and refined them with custom log analysis and visualization tools.

Hadal, Inc

Alameda, CA

Mechanical Engineer

3/2010–6/2011

- Designed and built mechanical assemblies for deep-water autonomous underwater vehicles
- Designed cast-titanium pressure vessel with heat exchanger, optimized with FEA for cost and weight
- Hydrostatic, thermal, mechanical, and FEA analysis of vehicles and sub-systems

MIT Autonomous Underwater Vehicle Lab

Cambridge, MA

Research Engineer / Graduate Student

2/2007–3/2010

- Assisted with analysis and mechanical design of three unmanned underwater vehicles
- Solely designed, built, programmed, and operated a novel unmanned underwater vehicle as a thesis project
- Mechanical designs included pressure housings, batteries, thrusters, vehicle frames, and winch systems
- Electrical design of power and communication systems, custom analog circuitry, and battery management electronics. Wet and dry cable and connector selection and assembly.
- Developed custom vehicle operating software and packages to analyze log data

Idealab

Pasadena, CA

Prototype Engineer

3/2004–3/2006

- Analyzed and prototyped many devices, particularly solar concentrators for power generation
- Complete mechanical design and construction of small, precision, high-concentration heliostat array
- Wrote software to model optical, mechanical, and electrical performance of solar concentrators

Skills

- Mechanical design and engineering including concept generation, CAD modeling in Solidworks, DFM, machine drawings, sourcing manufacturers, assembly. Operation of machine tools, waterjet cutters, sheet metal tools, welding.
- Electrical design of analog and digital circuits, circuit analysis, embedded systems. PCB schematic and layout in Eagle CAD, soldering and reworking, harness and cable assembly. Testing and debugging.
- Robotic operating software, device drivers, and firmware in C. Data analysis, modeling, and web back-end in Python with Numpy, Scipy, Matplotlib, and Django. Web interfaces in Javascript, HTML, and CSS. Strong Linux background and familiarity with low-level system and device interfaces.
- Analytical controller design, control system modeling, digital and continuous filters, hardware and software control implementation
- Engineering modeling and analysis of mechanical, thermal, fluid, optical, and electrical systems

Honors

Media 2013–2014

Recognized in Wired Magazine feature “The Drone That Will Sail Itself Around the World”. Saildrone project covered in Bloomberg Businessweek, Voice of America, and the San Francisco Chronicle.

Patents 2007–2014

Five patents and patents pending regarding autonomous sailboats, autonomous submarines, and solar power

NDSEG Fellowship 9/2008

National Defense Science & Engineering Graduate fellowship through the Office of Naval Research

19th Annual Caltech Engineering Design Contest 12/2003

Winner of ME 72 robotic design tournament

Interests

Automotive modification and rebuilding, motorcycle touring, mountain biking, backcountry camping, hiking, freediving, maps