

# Alex Williams

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- Los Angeles, California
- (424) 374-6923
- hello@alexw.design

**Objective** Hardware developer with exceptional engineering, math, and physics understanding; looking to advance the robotics industries through high-impact position focused on sustained innovation.

**Education** *University of Cambridge, Cambridge, UK (Manufacturing Engineering)*

**Professional Experience** *Consulting Work, (December 2019 – Present)*

- Worked on projects in the field of mesh network communication, both short-range machine networking, and long-range for data collection for smart agriculture projects
- Designed high power (3kW+) power supplies for custom motor controllers, implementing Trinamic ICs for low-cost closed-loop motion control, replacing high-cost servos
- Development of low power STM32L0 control boards, using <5mW power supplies

*Production Manager, Precise Waterjet, (October 2018 – December 2019)*

- Grew metal fabrication and consultancy from inception to \$20k/month revenue
- Worked with engineers from Caltech, Idealab, NASA JPL, MISO Robotics, and other startups/art production studios for rapid-turnaround part fabrication and manufacturing orientated design guidance

*Electromechanical Engineer, Expanse 3D, (November 2017 - April 2019)*

- Co-founder of hardware startup, raising \$1.25m in venture funding for development of a high-throughput autonomous 3D printing system, developing novel forming processes for producing fully isotropic metal parts
- Primarily Solidworks and Eagle PCB work (6+ layers), for electromechanical design development; subsequently with fabrication through rapid turnaround prototyping
- Designed and production-optimized robotics systems, designing to the fabrication limitations for the available machine tools
- Developed calibration processes for the manufacturing systems; dialing in part quality, per-part production time, etc
- Set-up initial workshop: oversaw building renovations; electrical contractor installations of CNC machinery; and personally installed KUKA KR-210 robotics system

*OGUS (Open Source Underwater Glider), (March 2016 - January 2018)*

- Started project to develop an underwater robotics platform for long duration coastal monitoring for a tenth of the price of commercial systems
- Developed multiple generations of electromechanical prototypes; fabricating hardware using in-house additive manufacturing and contract manufacturing of electrical boards
- Performed project outreach to raise awareness of the project and managed community relations; worked with ocean robotics engineers to develop a third generation

*Williams Energy Design, (June 2014 – March 2016)*

- Developed custom house-automation control boards for Passivehaus projects
- Setup and analyzed thermal bridge simulations of building construction following architect designs, and adjusting wall fixturing to minimize heat loss

**Awards, Accomplishments & Press**

*Hackaday Grand Prize (2017)*

- International 1<sup>st</sup> Place Winner; Won \$50,000 grand prize among over 1000 vetted project entries; designed and fabricated the world's first Open Source Underwater Glider to low barriers to oceanographic data-collection for scientists and researchers across the world.
- Secured competitive residency at the SupplyFrame DesignLab to further development efforts.

*“Why hacking is more compelling than a Cambridge degree”, Innovate Pasadena Keynote (2019)*

*“A Childhood with the Open-Source Hardware Movement”, Hackaday Keynote Speaker (2018)*

*“Hackaday Announces 2017 Prize Winner”, PR Newswire (2017)*

*“An Interview with Alex Williams, Grand Prize Winner”, Hackaday (2017)*

**CAD Program Proficiencies**

*Fully proficient (1000+ hours experience)*  
Solidworks; part/assembly creation  
Eagle; circuit design and component creation

*Partially proficient (500+ hours experience)*  
AutoCAD; part/assembly creation  
Altium Designer; circuit design