

## Jacob Wolf

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### EDUCATION

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#### University of California – Berkeley

• Master of Science, Mechanical Engineering – **GPA:** 4.0/4.0

*Aug 2013 - May 2015*

#### Dartmouth College

• Bachelor of Engineering, Mechanical Engineering – **GPA:** 3.80/4.0

*Sept 2012 - March 2013*

• Bachelor of Arts in Engineering Sciences – **GPA:** 3.60/4.0

*Sept 2008 - June 2012*

**Relevant Coursework:** Computer Aided Mechanical Design, Space Systems Engineering, Machine Engineering, Computational Fluid Dynamics, Advanced Fluid Mechanics, Hydrodynamic Stability, Digital Electronics, Numerical Methods, Cardiovascular Fluid Mechanics, Advanced Heat Transfer, Biomimetic Design

### WORK EXPERIENCE

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#### Graduate Student Researcher – Shadden Lab

*Fall 2013-Present*

- Wrote MATLAB code to extract accurate velocity fields in the left ventricle using ultrasound imaging
- Evaluating fluid mechanic properties inside the left ventricle in order to develop new diagnosis techniques

#### Propulsion Intern – Blue Origin

*June-August 2014*

- Used Creo and Ansys to design, analyze and build a tool for transporting and storing a rocket engine.
- Designed, built and tested a prototype automated engine analysis system for engine monitoring on the test stand.

#### Intern – Creare Inc

*June-August 2012*

- Designed and tested passive cooling system using carbon dioxide saturated water to be used as a desktop cooling system.
- Tested and programmed novel endoscopic kidney scanning system for image-guided kidney surgery.

#### Intern – Lunar and Planetary Science Academy at Goddard Space Flight Center

*June-August 2011*

- Simulated solar wind flow past lunar craters with NASCAP-2k in order to model complex electrical environment.
- Wrote MATLAB code to create finite element meshes of lunar surface, idealized craters and CAD models.

#### Undergraduate Researcher – Dartmouth Ice Research Lab

*Jan-June 2011*

- Used Scanning Electron Microscope to understand ice on ice rubbing at temperatures below -170°C.
- Awarded Presidential Scholar Research Assistantship

#### Intern – Weidlinger Associates Applied Sciences Division

*Sept-Dec 2010*

### ACADEMIC AND PERSONAL PROJECTS

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#### Robotic Plasma Torch Height Controller (With Victor Technologies)

*Fall 2012-Winter 2013*

- Designed and built two prototype actuators for precision z-axis control to enable robotic plasma cutting of 3-D parts.
- Awarded The Dartmouth Society of Engineers Prize for outstanding performance

#### Hydroelectric Power Generation

*Winter 2009-Winter 2013*

- Designed pico-hydroelectric system for developing countries, which were implemented in Vermont and Rwanda.
- Developed aluminum sandcasting process, fluids lab testing apparatus and local test site.
- Modeled and optimized individual components in SolidWorks with FEA and modeled complete system in MATLAB.

#### Ophthalmic Wrist Rest

*Fall 2010-present*

- Designed novel asymmetric wrist rest for ophthalmic surgeons. Physician testing is underway in several hospitals

**Current Personal Projects:** hockey cage with improved visual field, illuminated scleral depressor, portable climbing crashpad

### PUBLICATIONS

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- E. Friets, J. Bieszczad, D. Kynor, J. Norris, B. Davis, L. Allen, R. Chambers, **J. Wolf**, C. Glisson, S. Herrell, R. Galloway. “Endoscopic laser range scanner for minimally invasive, image guided kidney surgery” SPIE Medical Imaging 2013.
- Awarded U.S. Provisional Patent for the ophthalmic wrist rest in 2010, full patent pending.

### SKILLS

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**Programming Languages:** Proficient: MATLAB; Basic: R, Arduino, LabView

**Computer Software:** SolidWorks (Certified Professional), Creo, Ansys, SolidCAM, AutoCAD, Microsoft Office

**Prototyping:** Machine tools: drill press, lathe and mill (manual and basic CNC), 3D Printing, plastic and silicone molding, aluminum sandcasting, soldering

### LEADERSHIP AND MENTORING

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**Science and Engineering Community Outreach (SECO)** - Teach science to elementary school classrooms *Fall 2013-Present*

**Dartmouth Humanitarian Engineering** - VP Education, Mechanical and Civil Lead

*Fall 2010-Winter 2013*

**Club Hockey** - Captain of the Club Hockey team

*Fall 2009-Winter 2013*

**STAR** - Mentor for middle and high school students with chronic illnesses

*Fall 2009-Winter 2013*

**Dartmouth Outing Club Freshmen Trip** – Led rock climbing and hiking trip for freshmen

*Fall 2011*