

Travis Brashears

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EDUCATION

University of California, Berkeley Graduating Fall 2019

Degrees: B.S. Engineering Physics & B.A. Political Economy & Electronic Intelligent System EECS Minor

Awards: Regents Scholar, SPIE Photonics Conference Presenter, Newton Innovator Speaker

EXPERIENCE

SpaceX | Optics Build Engineer Feb 2020 – Present

- Building and testing development hardware for an in-space laser communication system.

Optical Engineering | Teaching Assistance Jan 2019 – June 2019

- Grad Optics Class – Grade and master material about diffraction, interference, geometric optics, materials, etc.

Uber Advanced Technology Group | Lidar Hardware Engineering Intern Jun 2018 – Dec 2019

- Designed, built, and implemented a robotic, optical calibration system for intrinsic calibration of Lidar.
- Designed full Solidworks assembly of system, programmed robotic system for auto calibration, implemented optical calculations in Solidworks and software. All built from scratch.
- Lead investigation into Lidar alignment through designing, building, and researching various methods for determining highly accurate alignment.

Space Technologies at Cal (STAC) | Co-President/Design Engineer Lead/Co-Founder Jun 2016 – June 2019

- Co-founded the club (stac.berkeley.edu) Featured by Berkeley Engineering: goo.gl/68Z1kh
- Built and grew an organization with 7+ project leads, 80 members, and 10+ industry/research advisors.
- Led design and manufacturing of a microgravity device (launching via Blue Origin) with 3 experiments.

Experimental Astrophysics Research Group | Lead Lab Experimental Researcher 2015 – 2018

- Produced 5 research papers as lead author and co-authored on 30+. Mentored 30+ students.
- Designed and machined entire vacuum chamber, torsion balance, and lab setup.
- Programmed the data acquisition system and ran 1000's of vacuum-laser experiments to validate theory.

PROJECTS

Robotic Quadruped | Electronic-Based Mechanical Design Jan 2019 – Jan 2020

- Created a 12-DOF quadruped from scratch - developed power distribution circuit, 3D printed gear box, software and controls for closed loop walking gaits.

Autonomous 1/8th Car | Electronic-Based Mechanical Design July 2018 – Jan 2019

- Designed, built, programmed a fully functional self-driving RC Car – Ouster Lidar, 3 cameras, and IMU integrated with ROS for path planning. Built from scratch. Fused GPS velocity and IMU for low-level control.

PCB Satellite – Launched 7 Satellites Nov 15, 2018 | Technology Lead June 2018 – June 2019

- Created a satellite that is the size of an Apple watch screen (35x35x4mm) that has an advanced power management system, radio, and maneuverability system. Team of 6.
- Wrote control code (similar to Bdot) for maneuvering satellite using magnet-torquers

Tunable-Phase Laser Array | Optical Engineering Class Group Project Oct 2017 - Dec 2017

- Utilizing phase modulation to achieve beam-steering/beam-focusing in the Fraunhofer region.

SKILLS

- **Specialty:** Leading Technical Groups, Research, Building Full System, Rapid Prototyping and Cost-Effective Design
- **Programming:** Python, ROS, Matlab, C, C++, Arduino, HTML, CSS, Flask
- **Other:** Vacuum Systems, Laser Optical Alignment, Solidworks, Siemens NX, Abaqus, Zemax
- **Tools:** General Machining (Lathe/Mill/Waterjet/etc.), 3D-Printing, Laser Cutting, Soldering