Travis Brashears

805-450-4884 • trbrashears@berkeley.edu • travisbrashears.com • stac.berkeley.edu

EDUCATION

University of California, Berkeley Graduating Spring 2019

***Majors**:* B.S. Engineering Physics & B.A. Economics & EECS Minor

Awards: Regents Scholar - Top 2% of incoming UC Berkeley students, Youngest Mentor for UCSB Research Mentorship Program - Department of Physics, Presented five published papers - SPIE Photonics Conference

Classes: Designing Devices/Systems I, II (EE), Structure & Interpretation of Programs (Python), Mechanics, E&M, Multivariable Calculus, Linear Algebra, Complex Analysis, Quantum, Optical Engineering, Data Science, Thermal Physics, Concepts of Probability*, Electromagnetic fields and waves*, Fluid Mechanics*, Deep Learning*

EXPERIENCE

Space Technologies at Cal (STAC), ***Co-President/Design Engineer Lead/Co-Founder*** *Jun 2016 – Present*

- Co-founded the club (stac.berkeley.edu) Featured by Berkeley Engineering: goo.gl/68Z1kh
- Built and grew an organization with 5+ project leads, 60 members, and 10+ industry/research advisors.
- Led design and manufacture of a microgravity experiments (launching via Blue Origin) with 4 experiments.
- Led design and prototyping of a CubeSat Deployer for smaller PCBSats.
- Developed autonomous rover algorithm + ISRU processing methods – in collaboration w/ NASA.

UC Berkeley Laser Thermal Lab, ***Undergraduate Researcher*** *Dec 2017 – Present*

- Currently Designing and building a lab setup for tuned laser ablation of Basalt.

Directed Energy LLC., ***Co-Founder*** & UCSB Physics, ***Lead Lab Experimental Researcher*** *2015 – Present*

- 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.
- Research led to starting a company to work on Lunar Launch and ISRU techniques – under review NIAC.

UC Berkeley Solar Vehicle (CalSol), ***Aerodynamics/Mechanical Sub Team*** *Aug 2015 – June 2016*

- Worked in a team of 5 on a next generation design of 2-4-person vehicle using SolidWorks.
- Used ANSYS Fluent (aerodynamic analysis) to devise the most aerodynamic design.

PROJECTS

Lidar Mapping/Voice Controlled Car *Jan 2017 – June 2017*

Electronic-Based Mechanical Design – EE16B Class Project

- Led the design and build of a front-end circuit using low-pass filters for mic input to a TI microcontroller.
- Voice processing used PCA and SVD to classify different voice commands. (Python, NumPy)
- Programmed real-time LIDAR mapping for location awareness (Python) – Outside of class project.

Augmented Reality Hackathon Dec *2016 – Feb 2017*

VP Partnerships and Technical Lead – Berkeley Entrepreneurs Association

- Learned, presented, taught, and debugged the Google Tango SDK for individual teams on augmented reality projects using the Tango SDK.

Power Op-Amp and Pulse Compressor *Aug 2016 – Dec 2016*

Bokor Research Lab - Nanoelectronics and Nanostructures Group at UC Berkeley

- Designed a power amplifier for an ultrafast magnetization dynamics experiment.
- Designed and made a pulse compressor for an experiment to test the Spin Hall Effect.

Tunable-Phase Laser Array *Oct 2017 - Dec 2017*

Optical Engineering Class – Group Project in Matlab - goo.gl/qe53sQ

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

SKILLS

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