ANDREW Y. CHEN

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EDUCATION

University of California, Berkeley **Graduation anticipated: May 2022**
B.S., Mechanical Engineering/Minor in Materials Science and Engineering GPA: 3.91/4.00

PROJECTS

Space Enterprise at Berkeley - UC Berkeley's Official Spaceshot Rocketry Team
Chief Executive Officer March 2020 – present
Project Lead, Low Altitude Demonstrator (LAD) Program December 2019 – March 2020
Composites Engineer August 2018 – December 2019

- Led the design and manufacturing of *LAD-04*, a 6.3"-diameter, 9'-tall carbon-fiber/fiberglass composite rocket designed to flight-test critical recovery and avionics infrastructure for *Eureka* flights. *LAD-04* successfully flew in March 2020 to an apogee of 11193 ft AGL and a maximum speed of Mach 1.18, setting UC Berkeley records
- Created, communicated, and managed an accelerated 7-week build timeline, build process, material supplies, and educated new team members about the basic theory and applications of laminar composite materials
- Currently overseeing the design, machining and testing of a pintle injector for the propulsion system of *Eureka 1*, the team's first liquid-fuel (LOX/Propane) rocket, with a static fire planned in Fall 2020

WORK EXPERIENCE

Precision Patient Outcomes, Berkeley, CA
Intern, Mechanical Engineering January 2020 – present

- Created and edited solid models from 3D scanner files of patients using 3D-mesh editing software and Solidworks for the development of custom facial orthotics for the treatment of burns, wounds, and congenital anomalies
- Introduced an additive manufacturing process for device fabrication in addition to existing CNC infrastructure to maximize workflow efficiency and provide necessary feature resolution

RESEARCH EXPERIENCE

Comparison of Manufacturing Methods for Laminar Carbon-Fiber Reinforced Polymer Composites
Introduction to Composite Materials, UC Berkeley Mechanical Engineering

- Fabricated laminar carbon-fiber epoxy composite structures by hand using a wet layup process and seperately using a commercially-available FDM 3D printer; computed theoretical laminate properties using published models
- Simulated specimens in various loading conditions (tension, flexure, and impact) using ANSYS
- Currently planning for mechanical testing pursuant to ASTM standards to empirically determine material properties

Development of an Electrically Conductive Composite Nanomaterial for Sterolithographic 3D Printing
Microelectromechanical Systems Laboratory, UC Berkeley

- Developed an SLA-printable, UV-sensitive composite resin for multi-material, multi-functional additive manufacturing with $\sigma \sim 150$ S/cm, allowing for rapid desktop fabrication of electronic parts with high resolution
- Designed and manufactured a fully 3D-printed, multimaterial capacitive pH sensor using the composite nanomaterial. The microscale sensor is capable of integrating with standard microfluidic equipment.

PUBLICATIONS

Chen, A., Baehr, S., Turner, A., Gu, G. X., Zhang, Z. *Carbon-Fiber Reinforced Polymer Composites: A Comparison of Manufacturing Methods on Mechanical Properties.* Accepted to the ASME IMECE 2020 Conference, November 2020.

Guardincerri, E., de Barros, N., **Chen, A.**, Mayers, G. Newcomer, F., Van Berg, R. et. al. *Imaging the Dome of Santa Maria del Fiore using Cosmic Rays.* Philosophical Transactions of the Royal Society A, Volume 377, Issue 2137, December 2018. DOI: 10.1098/rsta.2018.0136