ANDREW Y. CHEN

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EDUCATION AND SKILLS

University of California, Berkeley   **Graduation anticipated: May 2022**

B.S., Mechanical Engineering/Minor in Materials Science and Engineering   GPA: 3.9/4.0

Skills: 3D Printing (filament deposition; stereolithography); machine shop (lathe, mill); composite materials manufacturing (carbon fiber layups, vacuum bagging), AutoCAD, Solidworks, LaTeX, MATLAB, OpenRocket

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 and communicated an accelerated 7-week build timeline, managed the build process and material supplies, and educated new team members about the basic theory and applications of laminar composite materials
- Currently involved in the 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 Solidworks for the development of facial orthotics for the medical 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   January 2020 – present

- 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
- Mechanical testing pursuant to ASTM standards planned to empirically determine material properties

Development of an Electrically Conductive Composite Nanomaterial for Sterolithographic 3D Printing

Microelectromechanical Systems Laboratory, UC Berkeley   May 2019 – present

- 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 sensor is capable of integrating with microfluidic equipment; its electromechanical characteristics are currently being characterized

PUBLICATIONS

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