ANDREW Y. CHEN

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EDUCATION

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

PROJECTS

Space Enterprise at Berkeley - UC Berkeley's Spaceshot Rocketry Team **August 2018 – present**
Chief Executive Officer March 2020 – present

- Led the design and manufacturing of *LAD-4*, a 6.3"-diameter, 9'-tall carbon-fiber/fiberglass composite rocket designed to flight-test critical recovery and avionics infrastructure for *Eureka* flights. *LAD-4* 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, and material supplies; 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
- Managed a social media-driven, virtual recruitment and onboarding campaign, welcoming 35 new members to the team; reorganized the subsystem leadership structure to promote accountability and improve communication
- Oversaw team budget, streamlined internal reimbursement process, and received $5000 in departmental grants

WORK EXPERIENCE

Formlabs (Somerville, MA)
Intern, Mechanical Engineering - SLA Program September 2020 – December 2020

- Planned a series of experiments using Design of Experiments (DOE) fundamentals to characterize the performance of a post-processing device for large-scale SLA prints based on controllable parameters; currently carrying out tests and evaluating data to make design recommendations for the next iteration of development
- Designed and currently building an activated-carbon filtration system to mitigate excessive volatile organic compound (VOC) emissions from the exhaust of Form 3 and Form 3L printers
- Managing a database of 200+ printer configurations, critical component serials, and printer calibration test results across a fleet of printers during early mass production; tracking part changes and test data to facilitate communication between design engineers and manufacturer and to provide a high-level overview of the fleet's health

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
- Abstract accepted to the 2020 ASME International Mechanical Engineering Congress and Exposition

Development of an Electrically Conductive Composite Nanomaterial for Stereolithographic 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

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