

CHRISTOPHER A. BEAR

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UNITED STATES CITIZEN

EDUCATION

University of California, Los Angeles – B.S, Aerospace Engineering Dec. 2018

- Related course work: Fluid mechanics, aerodynamics, propulsion, aircraft structural analysis, flight mechanics
- Technical Breadth: Electrical Engineering

Reedley College – A.S-T, Physics May 2016

- Related course work: Chemistry, physics, materials science, electric circuits
- Magna Cum Laude

SKILLS & ABILITIES

Manufacturing: 100+ hours experience operating mill, lathe, and Haas CNC mill.

Software: SolidWorks, Fusion360 CAM, COMSOL, ANSYS, MATLAB, NASA CEA, Arduino

Computer Languages: C++, G-code

SCHOOL CAPSTONE AND CLUB PROJECTS

UCLA Rocket Project – Liquid Fueled Sounding Rocket Design and Launch 2016 – 2018

- Developed highly detailed SolidWorks CAD model of entire launch vehicle to ease integration and establish component dimensions, alignment, and tolerance
- Designed aluminum rail guides and bulkhead structures to reduce weight and improve strength and reliability
- Created detailed SolidWorks models of bulkhead components which were used for FEA and CAM
- Manufactured complex aluminum bulkheads using manual and CNC mills and lathes
- Manufactured carbon fiber and fiberglass components using oven-heated, vacuum-bag, and shrink-tape processes
- Analyzed bulkhead components post-flight to evaluate of design choices and make iterative improvements

UCLA Aerospace Engineering Capstone Group Project – Design of Fixed Wing UAV Winter 2018

- Worked with team to come up with mission-based requirements for a fixed-wing UAV
- Evaluated mission feasibility and determined basic aircraft layout using simplified calculations for range, drag, and lift
- Assisted team members with creating MATLAB functions for evaluating composite drag and lift
- Researched and selected an existing engine capable of meeting fit and power requirements
- Collaborated with team to create representative SolidWorks model of the aircraft to confirm CG and MOI calculations
- Assisted our team's MATLAB specialist in refining our optimization code and producing the best possible configuration
- Collaborated with teammates to produce a preliminary design report describing the theoretical viability of the UAV

UCLA Aerospace Engineering Capstone Group Project – Design of General Aviation Wing Structure Spring 2018

- Created V-n diagrams based on FAR specifications for general aviation aircraft
- Calculated lift and drag at all extreme loading cases for use in the structural analysis
- Modeled wing structure for general aviation aircraft using SolidWorks and performed Ansys structural and Eigen frequency analysis
- Used ANSYS, COMSOL, and SolidWorks fluid models to validate design calculations made with MATLAB scripts

UCLA Aerospace Engineering Capstone Group Project – Design and Construction of Hybrid Rocket Spring 2018

- Reverse engineered and improved commercial hybrid rocket motor design
- Engineered a spatially and mass efficient avionics bay and parachute recovery system
- Designed universal electronic control and ignition system with integrated nitrous oxide fill system
- Drafted complete and detailed SolidWorks models and drawings for all components and assemblies
- Worked with team to manufacture rocket components using aluminum, fiberglass, and 3D printed components
- Conducted a successful test program at the RRS facility that evaluated the thrust and impulse of the hybrid motor

UCLA Electrical Engineering Group Project – Design and Construction of Bluetooth Multimeter/Oscilloscope Summer 2017

- Developed Concept of Operations of remotely controlled multimeter and oscilloscope
- Used circuit design theory and physical experimentation to develop working circuit components
- Assembled complex circuit and used iterative troubleshooting process to ensure that all modes of operation functioned properly
- Collaborated with team programmers to test and calibrate the output and refine the user interface

WORK EXPERIENCE

Reedley College Tutorial Center - Tutor 2014 – 2016

- Responsible for tutoring physics, chemistry, mathematics, English, and art to high school and college students

ClearChannel Radio/iHeart Media – Board Operator 2010 – 2011

- Operated digital broadcasting system in normal daily preprogrammed operations
- Engineered live sports radio broadcasts including Super Bowl XLIII, college football, and high school basketball

LEADERSHIP

AIAA Student Branch at UCLA – Lab Manager 2017 – 2018

- Improved workspace productivity and safety through organization and enforcement of safety standards
- Mentored club members to improve their manufacturing knowledge and skills
- Improved rocket quality and test reliability by setting system integration deadlines seven days ahead of planned tests