Dominic Doty

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EDUCATION

California Polytechnic State University, San Luis Obispo, California, USA

- Bachelor of Science in Mechanical Engineering — Sep 2011 – Jun 2015
  - Concentration in Mechatronics
  - Cumulative GPA: 3.2 / 4.0

WORK EXPERIENCE

SpaceX, Hawthorne, California, USA

- Manufacturing Engineer, Dragon Spacecraft — Jul 2015 – Jun 2018
  - Mechanical Engineer responsible for manufacturing and assembly of the primary metallic structure on the Dragon 2 spacecraft which will take Astronauts to the International Space Station. Previously responsible for Dragon 1 structure.
  - Responsible for fabrication of the first four Dragon 2 spacecraft including the Qualification Capsule, Life Support Development Capsule, and first and second flight Capsules. Wrote all technical work instructions used by technicians in mechanical assembly. Heavily involved with design development team providing manufacturing feedback on parts both in design and production.
  - Experienced with precision hole drilling, precision tooling, tooling design, structural assembly, aluminum welding, machining, structural repairs, leak checking, fastening, laser tracking and scanning, Nondestructive Evaluation including liquid penetrant, ultrasonics, x-ray, and eddy current.
  - Troubleshooting tooling issues, designing, modeling, and creating engineering drawings for new tooling, performing root cause analysis, developing and implementing structural repairs. Produce technical documentation to meet NASA regulations on both Dragon 1 and 2.

Amazon Lab126, Sunnyvale, California, USA

- Product Design Intern, Sustaining Engineering — Jul 2014 – Sep 2014
  - Performed analysis using basic FEA and hand calculations to suggest design changes to correct mechanical failures seen in product testing on tablets.
  - Developed design guidelines for sizing of EMI metallic structures on printed circuit boards to prevent failures in testing based on analytical models of electronics.
  - Worked with vendors throughout the design and testing of consumer devices.

PROJECTS

NASA JPL Deployable Cubesat Antenna

- Design Lead — Sep 2014 – Jun 2015
  - Designed and built a 50cm deployable parabolic antenna reflector for 1.5U Cubesats (10x10x15cm package).
  - Developed overall design architecture. Used Solidworks parametric modeling to select mechanism configuration and sizing. Completed detail design of all components including GD&T engineering drawings.
  - Performed analysis on the surface accuracy of the parabolic reflector using MATLAB.
  - Participated in the manufacture of over 150 individual piece parts. Final assembled mechanism and completed initial testing.

Parker Hannifin Chainless Challenge, San Luis Obispo, California, USA

- Team Member — Sep 2011 – May 2014
  - Member of team of five undergraduate engineering students to design and manufacture a hydraulic powered bike.
  - Participated in design of hydraulic circuit for 2011 and 2012 bikes. Produced P&ID diagrams of the system. Participated in selection of components, gear ratios, and manufacturing of the bike.
  - Designed hydraulic circuit for 2013 bike. Sized and selected hydraulic components from Parker Hannifin. Analyzed fluid system losses and predicted performance. Packaged components on bike and developed engineering drawings for piece parts. Oversaw the manufacturing and integration of piece parts on the bike.

90W CO2 Laser Cutter

- Personal Project — Jan 2014 – Jun 2015
  - Designed complete CO2 laser cutter, laser optics system, and Class 1 laser enclosure per ANSI Z136.1 regulations.
  - Selected electromechanical components, motion control electronics, and laser system.
  - Made complete wiring and water cooling diagrams, assembly instructions, and built laser cutter.
  - Over $6,000 savings versus comparable commercially available systems.

3D Printer

- Personal Project — Sep 2013 – Jun 2014
  - Selected and sourced components for development 3d printer.
  - Assembled, calibrated, and troubleshot printer to achieve reliability and high print quality.
  - Added custom designed modifications to increase reliability, including stiffening braces, geared extruder, bed leveling sensors, and cooling system.

SOFTWARE

- **CAD**
  - NX
  - Solidworks
  - ProE/Creo
- **Analysis**
  - MATLAB
  - ANSYS (Introductory)
- **Programming Languages**
  - C/C++
  - HTML/CSS
  - LaTeX