Lawrence Chang

Lawrence.LC.2277@gmail.com
LinkedIn: lawrence-chang2277
Project Portfolio: lchangbuilds.com

Education

Northwestern University 2023 (anticipated)
B.S. in Mechanical Engineering with minor in Computer Science
- **GPA: 3.98/4.00**, High Honors - 2/3 quarters, Honors - 1/3 quarters
- Coursework: Machine Dynamics, Circuits, Fluid Mech, User Design, Statics, Linear Algebra, Differential Equations

Projects

See full list of projects at lchangbuilds.com

Semi-Autonomous Longboard March 2021 - Present
- Developing an electric longboard with a semi-autonomous person tracking mode
- Designed a compact robotic drive module able to withstand the dynamic loads during riding
- Performed stress, bending, and sheer calculations to select bearings, bearing materials, and linear rods
- Currently validating assemblies using FEA and optimizing parts with topology optimization
- Modeled and solved for impact load dynamics equations in MATLAB and verified dynamics using MSC ADAMS

Experience

Avid CNC North Bend, WA
Product Design Intern June 2021 - Sept 2021
- Designed and prototyped a magnetic laser cutter mount configurable to 16 positions and compatible with all current Avid CNC spindles and z-axes
- Wrote all technical documentation and conducted all testing of laser cutter module in preparation for new product launch
- Tested and debugged Mach4 laser control software with Warp9 Tech Design engineers for Avid CNC machines

Northwestern Formula Racing Evanston, Il
Electric Vehicle (EV) Engineer Sept 2021- Present
- Designing a waterproof EV battery sheet metal enclosure meeting FSAE battery safety and impact load requirements
- Performing airflow cooling simulations in Solidworks CFD to characterize cooling requirements of the enclosure

Suspension Engineer Sept 2020 - June 2021
- Designed and conducted FEA on adjustable anti-roll bar system (ARB) in Solidworks; demonstrated 15% weight savings compared to previous year's car while improving manufacturability
- Performed torsional and bending stiffness hand calculations to select material and meet FSAE ARB stiffness requirements

Segal Design Institute Evanston, Il
Senior Prototype Shop Trainer March 2021 - Present
- Developed curriculum for and taught operation of machine tools and hand tools on a weekly basis
- Assisted first year engineering design teams with prototype planning and fabrication
- Responsible for maintaining safety protocols and performing machine and shop maintenance

Paly Robotics Palo Alto, CA
Team Captain Aug 2016 - June 2020
- 2020 Robot Documentation
- Project managed technical operations of the robot and led the team to first tournament win in 14 years
- Coordinated logistics with mentors, parent volunteers, and school administration for a 70-member team
- Created and implemented machining curriculum, quadrupling number of proficient machinists on the team

Skills

Fabrication: CNC, Mill, Lathe, Plasma Cutter, Laser, 3D Printer, Welding, Prototype Electronics, Sheet Metal Fabrication

Design Engineering: Rapid Prototyping, SolidWorks, FEA, Topology Optimization, NX CAM, DFM, DFA, Fusion360 CAD/CAM, MSC ADAMS, GD&T

Software: Matlab, Python, Excel, C, C++, Arduino, LaTeX, HTML

Other: Technical Report Writing/Documentation, Fluent in Mandarin, Bill of Materials, Notion, Project Management