Lawrence Chang

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Project Portfolio: lchangbuilds.com

Education

Northwestern University 2023 (anticipated)
B.S. Mechanical Engineering and Minor Computer Science
- **GPA: 3.98/4.00**, High Honors - 2/3 quarters, Honors - 3/3 quarters
- Coursework: User Design, Statics, LinAlg, DiffEq, Multi Var Calc, Dynamics, Circuits, Fluid Mech

Experience

Avid CNC North Bend, WA
Product Design Intern June 2021 - Sept 2021
- Designed and rapidly prototyped a magnetic laser mount configurable to 16 positions using a single plate
- Responsible for testing and technical documentation of laser system in preparation for product launch
- Worked with partner companies to test and debug Mach4 laser control software and for CNC machines

Northwestern Formula Racing Evanston, Il
Suspension and Electric Vehicle Team Member Sept 2020 - Present
- Developing a waterproof, air-cooled electric formula SAE car battery enclosure to withstand high impact loads
- Researching thermal models and simulations for expelling battery waste heat
- Designed an anti-roll bar system (ARB) optimized with 15% weight savings using FEA

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 design teams with prototype planning and fabrication
- Responsible for maintaining safety protocols and performing machine and shop maintenance

Design Thinking Communication Course (DTC), Northwestern Evanston, Il
DTC Team Project Manager March 2021 - June 2021
- Led a 4-student design team to create a modular LED paneling system for a consulting firm
- Regularly conducted user and client interviews for mock up testing and research
- Wrote technical reports and a final presentation to document our research, prototypes, and design justification

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 our first competition win in 14 years
- Coordinated logistics with mentors, parent volunteers, and school administration for a 70-member team
- Led and organized a robotics summer camp for over 40 students across 2 weeks
- Created teaching curriculum which increased the number of proficient machinists on the team 5-fold

Projects

See full list of projects at lchangbuilds.com

Semi-Autonomous Longboard 2021 - Present
- Developing an electric longboard with a semi-auto person tracking mode
- Designed a compact robotic drive module to withstand the dynamic loads during riding
- Modeled and solved dynamics equations in MATLAB and simulated dynamics in ADAMS

Electric Microbike 2019
- Welded a custom full suspension tube frame from coped and slotted tubes
- Incorporated tail and headlights, a custom upholstered seat, and a 3D printed electronics enclosure
- Used a replaceable cell system for battery pack for serviceability

Skills

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

Design Engineering: Rapid Prototyping, SolidWorks, NX CAM, DFM, DFA, Fusion360, ADAMS, GD&T

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

Other: Technical Report Writing/Documentation, Fluent in Mandarin, BoM, Project Management, Leadership