

# Lawrence Chang

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Project Portfolio: [lchangbuilds.com](#)

## EDUCATION

### Northwestern University

2023 (anticipated)

B.S. ME, Minor CS, GPA: 3.98/4.00, High Honors - 2/3 quarters, Honors - 3/3 quarters

- Coursework: User Design, Statics, LinAlg, DiffEq, Dynamics, Circuits, Fluid Mech

## EXPERIENCE

### Avid CNC

North Bend, WA

Product Design Intern

June 2021 - Present

- Designed a highly configurable, magnetically attached laser system for CNC machines
- Responsible for testing and documentation of laser in preparation for product launch
- Worked with partner companies to test and debug control software

### Segal Design Institute

Evanston, IL

Prototype Shop Trainer

March 2021 - Present

- Responsible for developing curriculum and teaching manual mill, lathe, and general shop tools
- Responsible for maintaining safety protocols and performing machine and shop maintenance

### Northwestern Formula Racing

Evanston, IL

Suspension and Electric Vehicle Team

Sept 2020 - Present

- Designed and manufactured an adjustable stiffness anti-roll bar (ARB) system
- Optimized 15% weight savings while maintaining performance and improving manufacturability of the ARB
- Responsible for design of wheel hubs to withstand dynamic loads of road conditions
- Developing novel battery pack enclosure for electric formula one car

### 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 its 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 long board

2021 - Present

- Developing an electric longboard with semi-auto person tracking mode
- Designed a compact robotic drive module to withstand the dynamic loads during riding

### Electric Microbike

2019

- Welded tube frame with full suspension
- 1800w BLDC motor, built-in tail and headlights, and 3D printed electronics enclosure

### 3D Printed Ebike System

2018

- Used rapid prototyping to design an inexpensive 3D printed electric bike conversion kit.

### Mid-drive Ebike

2018

- Custom lithium ion battery packs with a replaceable cell system
- Unique in-frame motor mount made from custom machined plates and hubs

## HONORS

**FIRST Dean's List Finalist** Leadership and community outreach on the robotics team

2019

**Makerfaire Editor's Choice** Most engaging and creative displays at Bay Area Maker Faire

2019

## SKILLS

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

**Design Engineering:** Rapid Prototyping, SolidWorks, NX CAM, DFM, DFA, Fusion CAD/CAM, ADAMS, Vectric

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