

# ANNA WEI

MECHANICAL ENGINEERING

## CONTACT

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## SKILLS

### **CAD**

SolidWorks  
AutoCAD  
FEA - SolidWorks

### **Mechanical**

DFM & DFA  
Machining  
GD&T  
Drafting  
FDM & SLA 3D Printing  
Laser-Cutting

### **Languages**

English - Native  
Mandarin - Spoken

## EDUCATION

University of Waterloo  
[Sept 2018 – May 2023]  
  
Candidate for BAsC in  
Mechanical Engineering

## INTERESTS

### **Ultimate Frisbee**

[Mar 2014 – Present]  
  
UW Women's Varsity  
CEIUS 2019 Champions

### **Bouldering**

[July 2019 – Present]  
Currently climbing V3

## EXPERIENCE

### **Mechanical Design Intern**, *WATiMake Rapid Prototyping Clinic*

[May 2019 – Aug 2019]

- Designed, prototyped, machined, and assembled an active suspension demonstration platform, overcoming manufacturability and cost challenges
- Implemented a streamlined CAD workflow on term project and documented designing process to facilitate future project development
- Provided training and manufacturing design consultation on using equipment such as laser-cutters, FDM 3D printers, and SLA 3D printers for 100+ engineering students
- Designed products for additive manufacturability with FDM & SLA 3D printing following techniques to reduce warpage, including use of ribs, channels, and cores

### **Steering Architecture Designer**, *Midnight Sun Solar Car Design Team*

[May 2019 – Present]

- Innovated mounting solutions for rack and pinion steering system constrained by aerobody packaging; reduced manufacturing lead-time and cost
- Developed new steering wheel height adjustment mechanism to accommodate for  $\pm 10^\circ$  rotation by designing around driver comfort and usability
- Performed hand calculations to determine optimal length of moment arm and geometry for height adjustment mechanism

## PROJECTS

### **Active Suspension Demonstration Platform**

[May 2019 – Present]

- Engineered an apparatus to simulate vehicle suspension system, using spring mass damping up to 4kg load to create a quarter car model
- Reduced cost from \$20 000 to \$2 000 by designing easily machinable parts, eliminating need for CNC services and enabling parts to be fabricated in-house
- Created assembly on SolidWorks with over 100 components and conducted FEA to improve structural integrity of a slider crank mechanism for higher loads
- Used Solidworks to prepare technical shop drawings for fabrication of parts
- 3D printed and laser-cut prototypes to drive design improvements through iterations
- Accumulated over 100 hours of machining experience using mill and lathe

### **Lathed Ring and Ring-Turning Chuck**

[Sept 2019]

- Ideated and fabricated a chuck such that the outer diameter of a ring would be exposed during the machining process, allowing chamfers to be made
- Simplified set-up process by incorporating the use of the live-center tailstock on a lathe to expand chuck diameter, minimizing part-count from two parts to one

### **Music Robot**

[Jan 2019 – Apr 2019]

- Optimized robot performance by analyzing sensor readings in different lighting environments and troubleshooting mechanics, achieving repeatability of over 50 times
- Utilized AutoCAD to create functional and decorative laser-cut components