

# James Zhong Sheng Liu

## Education

Mechatronics Systems Engineering | Simon Fraser University | September 2016 – Present (4th year)  
- (BASc) focused in robotics, mechatronic systems, and sustainable energy

---

## Technical Skills and Knowledge

### Mechanical Engineering

- SolidWorks 3D model design: GD&T
- Machine design, FEA, CFD
- Prototyping and 3D printing
- Design for manufacturing
- Materials and component selection
- Fluid mechanics and thermodynamics

### Electronic and Systems Engineering

- Circuit design and analysis
- Sensor and actuator selection
- Power electronics
- Fuel cell design
- Real-time embedded control systems
- Microcontrollers
- Feedback control systems

### Applications and Programming

- MatLab–analysis, simulation, optimization
  - LabView–control systems
  - Assembly and C for microcontrollers
  - Rudimentary understanding: C++/Python
- 

## Work Experience

### Sales Associate | Rogers Communications | March 2019 – July 2019 & Jan 2020 – Present

- Learn the company's operational business model and apply the knowledge into my work
- Consistently meet acceptable quotas on sales numbers

### President | Mechatronics Systems Engineering Student Society | May 2019 – April 2020

- Managed a team of 7 executive officers and 6 year-representatives
- Provided guidance to each executive officer and plan for the society's future development
- Led external affairs with the Canadian Federation of Engineering Students, represented students at Undergraduate Curriculum Committee, and allocated society's finances/budget

### 1st Place Winner | SFU Robotics Competition | Jan 2019 – Feb 2019

- Sole mechanical designer of autonomous eco-robot; collaborated with five-member team
- Integrated mechanical design with onboard actuators, sensors, and other electronics

### Mechanical Engineer (Research Co-op) | Human in Motion Robotics | June 2018 – Dec 2018

- SolidWorks Part and Assembly modelling – designed new parts and recreated digital models from already-made components for the company's exoskeleton 'Exomotion'
- Created SolidWorks Motion Simulation from actuator-displacement data
- Selected mechanical components and machined parts from engineering drawings

**Mechanical Team Lead | SFU Unmanned Aerial Vehicle Team | Sept 2017 – June 2019**

- Mechanical Team Lead for 1 year: directed a sub-team of 6 engineering students
  - Modelled new mechanisms on SolidWorks for the hexacopter drone and 3D printed the designs
  - Connected electronic components to properly interface flight controller with auxiliary functions such as telemetry equipment, battery management system, and electronic speed controller
- 

## Engineering Projects

**LabView Miniature Assembly Line**

- Designed a NI LabView program to sort metals and plastics in a miniature assembly line
- Read data from infrared and inductive sensors to control the logic of the sorting component
- Rotary solenoid actuators used for material dispensing and linear solenoid actuators used for rejecting failed assemblies

**Autonomous Mobile Robot**

- Designed the robot on SolidWorks – drivetrain, structures, frame, and electronic casing
- Designed and 3D printed prototypes for the robotic system
- Fully assembled the robot

**Bionic Hand**

- Designed my own bionic hand on SolidWorks CAD
  - Sourced electronic components – actuators, sensors, controllers, and power source
- 

## Volunteer Experience

**Pie for Pi Day Fundraiser Head Organizer | Feb 2020 – March 2020**

- I organized a fundraising event at Simon Fraser University to celebrate Pi Day 2020. All donations to be donated to the IEEE Women in Engineering Vancouver Chapter with the hopes that it helps promote STEM to young women in Vancouver, Canada.

**Iron Ring Ceremony SFU Representative | Aug 2019 – Jan 2020**

- Collected information from graduating students and corresponded with the Corporation of the Seven Wardens Inc. Vancouver Camp 5.

**Co-Chair of SFU Engineering Competition | June 2018 – Nov 2018**

- I co-chaired the planning of the 2018 SFU Engineering Competition. This encompassed organizing the sponsorship, event planning, and other related tasks and efficient delegation of tasks and roles

**SFU STEM Outreach Event Volunteer | Oct 2017 & Oct 2018**

- Outreach event hosted at Simon Fraser University to encourage children to gain interest in the STEM field. Different clubs and organizations at SFU that are related to science and engineering participate in this annual event. I represented Team Guardian UAV at the outreach event