# David Luo

## Software/Mechatronics Engineer

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### EXPERIENCE

**Kamengo Technology /** Project Engineer

MAY 2018 — JUL 2022

- Spearheaded the design of heavy industrial equipment in 6 projects of 4 – 18 month durations, through the stages of initial client contact, proposal, detailed design, fabrication, and delivery.
- Developed a macro-driven spreadsheet paired with a parametric 3D model that reduced equipment modeling times by 80% and minimized human error.
- Redesigned material testing equipment with a 50% increase in operable range, new speed and position control features, and improved reliability by integrating sensors, adding user I/O, and programming an Arduino control system.
- Facilitated project progress by regularly engaging in meetings with clients, consultants, and suppliers.

**STEMCELL Technologies /** Automation Engineering Co-op

JAN 2017 — AUG 2017

- Developed a vial-centering mechanism using the iterative design process, while maintaining documentation for design work, testing, and data analysis.

**Boeing /** Automation Engineering Co-op

MAY 2016 — AUG 2016

- Designed 2 components for robotic manufacturing systems, documenting all decisions and calculations in formal technical reports.

**Ballard Power Systems /** Test Engineering Co-op

MAY 2015 — DEC 2015

- Built VBA macros to reduce fuel cell test data processing times by up to 90%.

### TECHNICAL PROJECTS

**Capstone Design Project /** Blouin Lab Foot Sole Stimulator

SEP 2017 — MAY 2018

- Designed and built a device that delivers a precise vibrational stimulus to over 1000 different locations on the foot sole at a range of frequencies and amplitudes.

**Mechatronic Product Design Course /** Basketball Action Follower

SEP 2017 — DEC 2017

- Developed code in C and C# to handle serial communication between the camera, audio, and motor systems, as well as to visualize the camera stream.
- Engineered a 2-axis moving camera system that physically tracked the location of a basketball using a PID control loop, computer vision, and sound localization.

**System Software Engineering Course /** Amazoom Warehouse

SEP 2017 — DEC 2017

- Created a multi-threaded network-based virtual store and warehouse system with a client-server architecture in C++.
- Implemented synchronization and communication between 3 or more processes with appropriate resource allocation.
- Documented software architecture using UML diagrams.

### EDUCATION

**University of British Columbia**

SEP 2013 — MAY 2018

B.A.Sc. in Mechanical Engineering, Mechatronics Option

Graduated with Distinction

Cumulative Average: 90.6%

### COURSES

Data Structures & Algorithms

System Software Engineering

Digital Systems & Microcomputers

Mechatronic Product Design

### AWARDS

Canadian Society of Mechanical Engineers (CSME) Gold Medal for Outstanding Academic Achievement

### PROFESSIONAL INTERESTS

Software Engineering

Automation and Optimization

Computer-Controlled Systems

### SKILLS

SOFTWARE

Python

JavaScript

HTML

CSS

VBA

C, C++, C#

Git, GitHub

MATLAB

OTHER

Arduino & Microcontrollers

Control Theory

Computer-Aided Design (CAD)

3D Printing

Instrumentation