Saksham Malhotra

Mechatronics Engineering Graduate | University of Waterloo | 2021

📱 **(647) 309-3852**

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in linkedin.com/in/saksham98

HARDWARE EXPERIENCE

Lab Assistant, *Velocity Incubator (University of Waterloo)*   *Jan 2020 – April 2020*

- Completely remote internship during the COVID-19 pandemic
- Created SOPs and safety documentation for various lab stations used by start-ups at Velocity
- Developed 3D floor plan models of the workspace in SolidWorks as assemblies with corresponding drawings for COVID-19 safety maps

Mechanical Engineering Assistant, *Smarter Alloys*   *Jan 2020 – April 2020*

- Designed and developed miniature thermal actuators for clients using shape memory alloys (NiTi) and conducted finite element analysis (FEA) in Fusion 360
- Conducted controlled experiments using laser processing and thermal treatments to analyzing the transformation behaviour of shape memory materials
- Designed mechanical fixtures using Fusion 360, along with electrical control boxes, for in-house lasers to increase their efficiency and safety

Manufacturing Engineering Intern, *Formlabs*   *May 2019 – Aug 2019*

- Used SolidWorks to design, prototype and build multiple jigs to test laser safety by collecting light transmission data for customer facing parts of the Form 3 printer
- Validated laser safety testing jigs by conducting a Gage R&R study to establish a baseline for instrument and operator variation
- Organized and managed the in-depth quality control initiative for the first 300 customer-ready Form 3 printers during production ramp
- Worked with contract manufacturers by providing feedback from the quality control effort resulting in an 80% increase in first pass yield of the Form 3 printers

Instrument Engineer, *Nicoya Lifesciences*   *Oct 2018 – Dec 2018*

- Transitioned the OpenSPR medical instrument from the development to manufacturing stage by creating detailed work instructions and a bill of materials
- Decreased manufacturing time of the OpenSPR by 60% by improving tolerances of the assembly design features
- Developed a comprehensive production schedule to provide accurate delivery times for new customers based on supplier lead times
- Optimized the manufacturing space and process flow resulting in a 200% increase in production

Mechatronics Engineering Intern, RYSE (Formerly *AXIS Inc.*)   *July 2017 – Aug 2017*

- Modeled a test jig in SolidWorks before building and wiring it to measure output current from a solar panel under various lighting conditions
- Tested and repaired various electronic components including a capacitive touch sensor and the main control board for the AXIS Gear
- Tested and assisted with the improvement of battery charging algorithm using UART debugging

TOOLS

SolidWorks

Fusion 360 (w/ FEA)

AutoCAD

MATLAB

ePDM

Asana

Atlassian (Jira/Confluence)

Amazon AWS

MySQL, Microsoft SQL

MECHANICAL SKILLS

Mechanical Design

Lean Manufacturing

SLA & FDM 3D Printing

Machining

Laser Cutting

Laser Processing

Soldering

PROGRAMMING LANGUAGES

C++, Java

Python

Linux, Bash Scripting

HTML, CSS, JS

EDUCATION

Degree: Bachelor of Applied Science

Major: Mechatronics Engineering

Institution: University of Waterloo

Grad Date: April 2021

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SOFTWARE EXPERIENCE

Software Developer, Bluejay Networks — *Dec 2017 – Apr 2018*

- Ported the UI component of an internal product to an Amazon AWS EC2 Linux instance and configured it using Apache Tomcat
- Created bash scripts in Linux to automate and optimize import and export of as2files
- Used Cron to implement and monitor the automation process

Full Stack Developer, Bark 'n Yapp — *May 2017 – July 2017*

- Created a landing page for the company's main website using HTML, CSS and JavaScript
- Tested and modified various parts of the website and the mobile app including a verification system for new users, a payment system for vendors, and features for the user profile
- Used MySQL to assist with debugging and documentation of file paths

PROJECTS

Smart Knee Brace for Osteoarthritis, *University of Waterloo* — *July 2020 – April 2021*

- Creating a smart unloader knee brace prototype to relieve pain for patients suffering from multicompartmental and unicompartmental Osteoarthritis
- Designed the brace in SolidWorks and built a functional prototype using aluminum sheet metal, custom 3D printed components, a spring and cable system, IMU sensors and motor system.
- Adopted a Kanban style of project management to manage the team and build the brace with minimal resources and budget during the COVID-19 pandemic
- Used Blender to create and edit marketing and demo videos for the brace

Portfolio Website, *Personal* — *Apr 2021 – Present*

- Programming a personal portfolio website using HTML, CSS & Javascript and hosting it on github pages: https://malhotra-saksham.github.io/

Security Camera (Stewart Platform), *University of Waterloo* — *Sep 2019 – Dec 2019*

- Modelled (MATLAB) and designed (SolidWorks) a security camera system built upon the foundation and principles of a Stewart Platform
- Programmed the motor moves routine to match a MATLAB inverse kinematics model in C++ on a STM32 Nucleo Board

3D Printed Ukulele, *Personal* — *July 2019*

- Redesigned and 3D printed a soprano ukulele in multiple parts using an SLA 3D printer

Tetris, *University of Waterloo* — *June 2018*

- Programmed the classic game of Tetris on a KeilMCB1700 boarding using C#

Mentor/Control Systems Team Lead, *F.I.R.S.T. Robotics* — *Sep 2014 – Sep 2017*

- Designed and built the electronics control panel for a robot for high school robotics team

PREVIOUS NOTABLE ACADEMIC COURSE

- MEMS Fabrication
- Digital Control Application
- Fluid Dynamics
- Fluid Power Systems
- Thermodynamics
- Power Electronics
- Real Time Systems
- Electromechanical Machine Design

SPOKEN LANGUAGES

- English
- Hindi/Punjabi

AWARDS

President's Experiential Award (*2021*)
University of Waterloo

President's International Experience Award (*2020*)
University of Waterloo

President's Scholarship of Distinction (*2017*)
University of Waterloo

Leadership Award (*2016*)
Gordon Graydon Memorial Secondary School

INTERESTS

- Ultimate Frisbee
- Basketball
- Running
- Ukulele
- Piano
- Gaming