Udham Lalli

+1 (604) 396-4651 | Surrey, BC V4N 0V1 | usl@sfu.ca | linkedin.com/in/Udham-Lalli/

Education

Bachelor of Applied Science *Simon Fraser University* 2020-Present

- Mechatronic Systems Engineering
- Expected graduation: 2025

Skills

Mechanics
- Mechanical Design
- 3D Printing
- Stress Analysis
- Kinematics & Dynamics

Electronics
- Printed Circuit Boards
- Oscilloscope
- Digital Multimeter
- Function Generator

Software
- SolidWorks, Arduino
- Python, Java, C, C++
- MATLAB, HTML, CSS
- Microsoft Office

Technical Experience

Production Assistant *ConeTec* Sept - Dec 2022

- Soldered through-hole and surface mount components onto PCBs
- Assembled and repaired various electrical and mechanical devices including power supply boxes, gear systems, several types of motors and other ConeTec products
- Managed 3D printing processes for rapid prototyping and mass production of small components
- Tested PCBs to ensure that they functioned correctly and up to the ConeTec standards
- Gained proficiency with shop tools such as screwdrivers, drills, wrenches, soldering irons, and more

Programmer/CAD Designer *Team Phantom - SFU's Formula SAE team* Oct 2021 - Feb 2022

- Designed a 265/40R18 sized tire rim using solidWorks for the car prototype
- Assembled a virtual suspension system for the chassis of the vehicle using SolidWorks
- Prototyped various PCBs for the vehicle's controls systems using breadboards and Arduino coding

Project Experience

CAD Designer *Western Engineering Competition: Junior Design* Jan 2022

- Designed a motorized wheelchair attachment to cut up snow and clear paths using solidWorks, enabling wheelchair dependent users to traverse snowy terrain independently
- Dimensioned and drafted a mechanism in SolidWorks to reliably attach and detach the machine to the wheelchair safely and quickly
- Presented and argued the theory, effectiveness, and advantages of the design, resulting in 3rd place

Stress Analyst *Strength Analysis and Design of Bike Frame* Sept - Dec 2021

- Calculated the stresses and safety factors within the truss structure of a bike when under several loading conditions for comparison with the simulated values
- Modelled the bike in SolidWorks and applied virtual stress tests to compare to the calculated values
- Created a new and improved bike design using SolidWorks which increased the maximum allowable stresses and safety factors of the bike

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Project Experience (Cont.)

Materials Designer *Fan Blade Design for Aircraft Turbine* Sept - Dec 2021

- Calculated the allowable stresses, fracture toughness and fabrication costs of a fan blade based on multiple loads and a lifetime of at least 100,000 cycles
- Selected candidate materials for the fan blade using materials engineering software based on the costs, weight, allowable stress, fracture toughness and the safety factors of the materials
- Determined the best material from candidates based on economic and environmental properties

Team Lead *Maze Solving Robot* May - Aug 2021

- Lead the design of a robot that solved a 4x6 maze using C programming and touch/sonar sensors
- Optimized multiple maze solving algorithms to increase the efficiency of the robot
- Developed a wall checking function that continuously saved previously checked walls into the memory of the robot to keep track of its position and progression through the maze
- Created a backtracking algorithm which determined and followed the shortest route back to the start

Lead Programmer *Barcode Reading Robot* May - Aug 2021

- Created a robot which used a bottom mounted color sensor to scan a barcode as it drives over it
- Coded the robot's movement and read the color values of the barcode into memory using C
- Implemented MATLAB to refine and decode the data obtained from the robot which was then compared to a truth table in MATLAB to find it's true value

Work Experience

Lifeguard and Swim Instructor *City of Surrey* Sept 2022 - Present

- Tailored swimming lessons for all age groups based on individual learning styles and experience levels
- Oversaw activities of students and swimmers, enforcing pool rules, safe swimming and providing assistance and customer service as needed
- Performed regular maintenance around the facility, ensuring all standards and regulations are constantly met to guarantee the safe operation of the facility
- Developed the ability to recognize and treat various medical emergencies in accordance with the national Red Cross safety standards

Qualifications and Distinctions

- WHMIS Certification, SFU — Expires: March 2024
- Standard First Aid, City of Surrey — Expires: Aug 2022
- 3rd Place Junior Design Western Engineering Competition, WEC — Jan 23rd, 2022
- 1st Place Junior Design Engineering Competition, SFU — Nov 20th, 2021

Interests

- Fitness
- Dance
- Swimming
- Martial Arts
- Film and TV
- Video Games