Taha Malik

Mechanical Engineering Graduate

(226) 606-8986
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linkedin.com/in/t5malik
t5malik.github.io

SKILLS

Mechanical & Design
SOLIDWORKS, Inventor, CATIA, AutoCAD, HyperWorks, KeyShot, DFMA, FEA, Tolerance Analysis, GD&T, Drafting

Hardware
Arduino, Motors, Soldering, Rapid Prototyping, Sensors & Instrumentation, Machine/Power Tools, CAN

Manufacturing
DOE, RCA, Kaizen, APQP, FMEA, Six Sigma, SPC, 5S, PPAP, Lean Manufacturing

EXPERIENCE

Able Innovations- *Product Development Intern* June – September 2020

- Completed detailed product design of primary drivetrain and subassemblies for automated patient transfer device
- Developed open differential gear train with linear compliance to create variable drive rack & pinion system
- Improved manufacturability of parts by reducing number of fasteners, using standardized parts, developing modular assemblies, and designing for effective joining
- Followed GD&T principles to develop engineering drawings of parts and assemblies

Skill Development: Product Development, CAD Modelling, DFMA, Engineering Design Process

Self Employed – *Freelance Product Design* May – September 2020

- Oversaw design of mechanical & electrical systems from idea generation to completion
- Developed requirements and executed on test plans to handoff deliverables ahead of schedule
- Manufactured and assembled prototypes for product evaluation and quality control
- Created sketches, engineering drawings, and renderings of full assemblies & individual parts

Skill Development: Business Management, Effective Communication, UX/UI Design

Bionik Laboratories – *Hardware Engineering Intern* September – December 2019

- Collaborated with industrial design team to develop electro-mechanical prototype of neurorehabilitation robot used in design evaluation and testing
- Designed motor components, conducted FEA in SolidWorks and communicated with suppliers to ensure accurate parts
- Developed test plan to grade BLDC motors and classify based on performance under medical grade safety standards

Skill Development: Hardware Debugging, Physical Prototyping, Electrical Testing, Medical Device Standards

Tesla Motors – *Quality Engineering Intern* January – April 2019

- Completed Root Cause Analysis to rectify quality issues on all Tesla models
- Introduced defect tracking Java app to gain visibility on throughput rate
- Used Continuous Improvement principles to decrease cycle times by 25%
- Eliminated oil defects by performing FTIR tests to identify source of issues
- Designed and fabricated sealer quality tools saving $11,000 annually

Skill Development: Problem Solving, Manufacturing Fundamentals

Mitchell Plastics – *Project Engineering Intern* May – August 2018

- Managed injection moulding process for Toyota Rav4 by training workers, designing packaging, and validating assembly procedures
- Formed part storage and purge system to better utilize warehouse space
- Used VBA to streamline machine trial process from program summary

Skill Development: Project Management, Plastic Manufacturing

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EDUCATION

University of Waterloo – *Mechanical Engineering Graduate* September 2016 – April 2021

Bachelor of Applied Science

- Option in Biomechanics
- Relevant Courses
  - ME 322/423 (Mechanical Design 1 & 2)
  - ME 481/482 (Capstone Project)
  - ME 559 (Finite Element Methods)
  - ME 360 (Introduction to Control Systems)
  - ME 340 (Manufacturing Processes)
  - ME 598 (Engineering Biomechanics)
  - SYDE 548 (User Centred Design Methods)

PROJECTS

Minimalist Lower Limb Exoskeleton

- Provides walking assistance and neurorehabilitation to users with an Incomplete Spinal Cord Injury who have limited motor control of ankle joint
- Uses sensors to determine user position in gait cycle and applies required torque through an active actuation device
- Implementation of passive support structures to facilitate motion in plantarflexion/dorsiflexion with tuneable support along subtalar axis
- Complies with regulatory standard 890.3480 (Powered Exoskeleton) and safety standard ISO 13482 (Personal Care Robot)

Custom 3D Printer

- Used online and text resources to build functional 3D printer from scratch
- Modified community source code to work with printer
- Print accuracy of +/- 0.1mm and ability to print in PLA, PETG, and ABS

Android App Development

- Developed "*World Exploring*" Harry Potter adventure game with over 10,000 downloads
- Created fitness tracking app to track user progress, and suggest workouts with recommended weights

INTERESTS

Environmentally Sustainable Technologies, Medical Devices, Product Design and Research, Basketball, Fitness, Photography, Reading, Woodworking, UWAFT (UW Alternative Fuels Team)