KRRISH SHAH

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Available from May 2027 | Open to relocation

EDUCATION

McMaster University, Hamilton, ON **Expected April 2030**

B.Eng.Mgt., Mechanical Engineering and Management (Co-op), Level II | **GPA 3.9 / 4.0** | 4 months of engineering co-op completed

Coursework: Engineering Design and Graphics (CAD), Statics, Mechanics of Materials, Materials Science, Thermodynamics

EXPERIENCE

ROZOR, Hamilton, ON **May 2026 - Aug 2026**

Mechanical Engineering Intern (Co-op)

- Designed **8** SolidWorks CAD models for an autonomous delivery and disinfection robot, packaging the drive, sensor, and payload subsystems into a fixed chassis envelope.
- Produced detailed **engineering drawings** with **GD&T (ASME Y14.5)**, using tolerance stack-up on mating brackets and sensor mounts to catch interference before first assembly and cut prototype rework.
- Ran **structural FEA** on load bearing frame members for deflection and factor of safety, verified results with **hand calculations**, and reworked bracket geometry to cut peak stress with no added mass.
- Iterated the chassis through **3 design revisions** with the lead engineer, prototyping and refining parts for manufacturability (DFM) and keeping the BOM current.
- Post processed test and mass properties data in Python and MATLAB and documented the results for design review.

IEEE McMaster Bionic Arm (IEEE EMBS student team), Hamilton, ON **Nov 2026 - Present**

Subteam Member, Mechanical Design and Integration

- Design the **tendon driven** fingers, palm, and wrist in CAD for a robotic hand and arm that grips objects on command, the first step toward camera guided picking and a humanoid robot.
- Select and fit the **motors, gears, and cable routing** that pull each finger like a tendon, so the actuators sit in the arm and the hand stays light and compact.
- Design the **dual mode mount** that lets one arm switch between a prosthetic worn by a person and a robot fixed to a base.
- Iterate from CAD to **3D printed** prototypes and back, testing each part's fit and motion before full assembly.

McMaster Aerial Robotics and Drones, student engineering team, Hamilton, ON **Sept 2025 - Present**

Mechanical Engineer, Airframe and Payload

- Design and prototype a servo actuated release mechanism rated to **3 kg** with tool free mounts so the payload bay reconfigures between missions.
- Lead **structural design** of the plate frame UAV chassis, optimizing load path and stiffness to weight for plate fabrication.
- Bench test proof of principle assemblies and run **root cause analysis** on recurring failures using flight and bench test data.
- Wrote the assembly, test, and verification procedures a **50 member** team builds to, and settle mounting tolerance and vibration issues with electrical and software leads.

TECHNICAL SKILLS

Design and CAD: SolidWorks (parts, sub-assemblies, simulation), Inventor, GD&T (ASME Y14.5), tolerance stack-up
Analysis and Validation: Structural FEA, hand calculations, motion analysis, bench testing, root cause analysis
Prototyping and Manufacturing: Prototype builds, DFM/DFA, FDM 3D printing, mechanical assembly, BOMs
Robotics and Electronics: ROS, MoveIt, URDF, NVIDIA Isaac Sim, actuator and sensor integration, soldering
Programming and Test: Python, MATLAB, Excel, test planning, fixturing, data acquisition
Certifications: Certified SolidWorks Associate (CSWA), Anthropic Claude Certified Architect

TECHNICAL PROJECTS

Bio-Handling Robotic Arm, HealthHatch (McMaster student team) **2026**

- Led mechanical systems for a funded, actuator driven bionic arm for medical labs, designed toward **7 degrees of freedom** and a **2 kg** payload, owning its joints and actuator mounts in SolidWorks.
- Co-led the **gripping mechanism** that grips, extracts, and releases objects in the lab.
- Tested arm motion in simulation by exporting the CAD to **URDF** for ROS and NVIDIA Isaac Sim and planning in MoveIt with joint limits and collision checking.

Autonomous Rover, mechanical, electronics and controls build (personal project) **2026**

- Took a rover from CAD to working hardware: **15+** 3D printed parts, hand finished and assembled into chassis, suspension, drivetrain, and sensor mounts.
- Soldered and integrated sonar and light sensors, and wrote Python control mixing hard coded routines with sensor driven navigation and tuned turning physics.
- Cleared **all 6 stages** of a purpose built obstacle course: hard coded turns, sonar detection, speed recognition, light sensing, precision turns, and a textbook push at the finish. Demo video on request.