

# SAHAR MAHBOBI

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## EDUCATION

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**McMaster University**

Hamilton, ON, Canada

*Candidate of Bachelor in Mechanical Engineering*

*Expected April 2028*

## TECHNICAL SKILLS

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**Softwares:** AutoDesk Inventor, AutoCAD, SolidWorks, SketchUp, Blender, Ansys Granta, Prusa Slicer

**Languages:** Python, Arduino IDE, MATLAB, R

**Developer Tools:** Microsoft Office Suite (Excel, PowerPoint, Word, Teams, Outlook)

## EXPERIENCE

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**3D Modeling/Design Intern**

May 2025 - Aug 2025

*Forever Kitchen*

- Created accurate **3D models of custom cabinetry** and interiors using **SketchUp, Blender, SolidWorks** to visualize designs for clients.
- **Revised shop drawings as advised by carpenters** to turn client concepts into digital models.
- **Collaborated with clients and carpenters** to define details, dimensions and ensuring models were build-ready.

## PROJECTS

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**Automated Large-Radius Circle-Drawing Robot** | *AutoDesk Inventor, PrusaSlicer, Arduino IDE, Fabrication, Testing*

- Developed an automated robot **less than 10 by 10 cm** to draw the **largest, most high-precision circular path**.
- Took **concept sketches** to product by designing the prototype and final assemblies using **Autodesk Inventor**.
- **Fabricated** all components through **PrusaSlicer with Prusa 3D Printers**, applying **proper tolerances** to ensure accurate fits.
- **Wrote, debugged and optimized custom Arduino code** to control motors and perform autonomous motion.
- Applied **creative mechanical design**, leveraging pre-made geometries to reduce overall size.

**Airport Luggage Transportation Solution** | *Python, Autodesk Inventor, Prototyping, Testing*

- Designed and built a **linear-actuator-driven** bridge between two platforms of varying height to **improve operational efficiency and safety**.
- Developed the initial concepts and final mechanical design using **Autodesk Inventor**.
- Fabricated **high fidelity 3D printed prototype through PrusaSlicer** and refined through continuous testing.
- Implemented **custom Python code** to control consecutive **Q-Arm and linear actuator** motion autonomously.

**Wastewater Filtration Fiber Research** | *Ansys Granta, Ashby Charts, Eco Audits, Material Selection*

- Researched and selected an optimal filter fiber material for wastewater filtration plants located in Hamilton, ON.
- Analyzed a variety of materials by **effectively evaluating material databases within Ansys Granta**.
- Created and compared **Ashby Charts using hand-calculated material index lines** to identify candidate materials.
- Evaluated environmental impacts and **emphasized sustainable materials using Eco Audit** assessments and graphs.

**McMaster Designathon 2025** | *McMaster Design League CADing Competition - Team Lead*

- Designed an elephant-shaped robot vacuum attachment, raising furniture legs and enabling the robot to clean underneath inaccessible areas.
- Sketched and compared multiple initial design concepts, refining the design to balance creativity, feasibility and versatility.
- Developed a final CAD model assembly using AutoDesk Inventor.
- **Pitched the completed design to a panel of three judges**, communicating design benefits and functionality.

**Custom PC Build - Personal Project** | *Hardware integration, system configuration, technical research*

- Selected and **assembled hardware components like CPU, GPU, RAM and storage** to meet performance needs within a certain budget.
- Installed **thermal management and cable routing**, continuously maintaining optimal system conditions
- **Configured the operating system, drivers and BIOS settings** to personal performance settings.

## EXTRACURRICULAR

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**Vice President of Marketing** | *McMaster Afghan Student Association*

- Increasing club visibility and event engagement through a variety of marketing efforts.
- Design eye-catching and original marketing posts to promote events, fundraisers and general meetings on all social media platforms.
- Coordinate and direct team members to produce high-quality engaging promotional videos across social media platforms.
- Collaborate with marketing teams from other student organizations to execute marketing strategies for joint events.