Shreya Chandrasekaran

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Profile

Mechanical engineering applicant driven by curiosity about how everyday objects work, especially how motion and interaction shape mechanical behaviour. Explored engineering through CAD-based design projects, prototyping, and analytical problem-solving, approaching challenging maths as logical puzzles rather than rote exercises. Intends to pursue TU/e's Mechanical Engineering programme for its balance of rigorous fundamentals and collaborative project work.

Nationality: Indian

Current residence: Doha, Qatar

Languages: – Tamil (Native)
– English (Fluent)
– Hindi (Moderate)

Education

University of Toronto — **Sep 2023 – Apr 2025**
Bachelor of Applied Science in Mechanical Engineering — Completed first-year level coursework — *Ontario, Canada*

GEMS Wellington International School — **Sep 2018 – Jun 2023**
Pearson Edexcel A-Levels: Mathematics (A), Physics (B), Chemistry (B), Design & Technology (C)
Pearson Edexcel IGCSEs (9 subjects) — *Doha, Qatar*

Major Projects

Camera Clip | *Design Engineer* — **Jan 2025 – May 2025 | University of Toronto**

- Designed a quick-access camera carrying solution enabling single-hand attach/detach in < 2s, meeting client ergonomics, security, and durability specs
- Explored a broad design space using structured ideation and reverse engineering; down-selected and refined concepts through feasibility analysis and weighted decision matrices
- Modeled in Fusion 360 with refined tolerances; Prototyped using FDM 3D printing, with iterations to improve joint durability and hinge smoothness
- Bench-tested for dimensional accuracy and load, verifying < 2s access time and zero detachment failures; Produced 3D renderings, engineering drawings, and manufacturing documentation

Fall Detection Device (Biomedical) | *Project Manager* — **Jan 2024 – May 2024 | University of Toronto**

- Redesigned fall-detection device for long-term care facilities, establishing performance targets of $\geq 95\%$ accuracy and $\leq 5\%$ false positives
- Produced engineering sketches, Gantt charts, and development milestones to structure the design and testing process
- Integrated accelerometer and gyroscope; optimized casing, sensor placement, and sampling frequency for improved signal reliability
- Tested preliminary prototype in controlled settings to assess performance against defined metrics

Aluminum Can Design Analysis | *Team member* — **Mar 2024 | University of Toronto**

- Modeled can geometry as a cylindrical system; applied constrained optimization via differential calculus to minimize surface area for a fixed volume
- Analyzed structural behavior by examining material thickness variation, dome curvature, and internal pressure; explained stability and deformation using mechanics principles and the ideal gas law
- Investigated manufacturing processes (two-piece vs three-piece); evaluated cutting, drawing, ironing, and double-seaming for material efficiency and waste reduction
- Assessed sustainability and human-factor considerations; related lightweighting, recyclability, and can dimensions to energy use and ergonomic grip through geometric analysis

Sustainable Shopping Cart (Product Design) | *Individual Project* — **Jul 2020 – Apr 2021 | GEMS Wellington**

- Designed collapsible shopping cart to reduce disposable bag use and save space
- Researched ergonomics, weight distribution, and folding mechanisms through user interviews and market analysis
- Modeled in Fusion 360; fabricated down-scaled FDM prototype and functional timber prototype
- Delivered final package with engineering drawings and full Life Cycle Assessment

Internships

VHM Hospital | *Biomedical Research Intern* **Jul 2022 | India**

Shadowed the lead neurosurgeon to observe the use of biomedical devices during live procedures; Assessed device functionality and efficiency; Compiled observations and areas for potential improvement into a detailed technical report.

Volunteering

Claylab Education Foundation | *Mentorship Program Coordinator* **Feb 2023 – Apr 2023 | Virtual**

Managed 20 mentor-mentee pairs in a virtual environment; guided pairs to meet weekly targets; conducted bi-weekly mentor meetings.

Claylab Education Foundation | *Course Designer* **Jun 2022 – Jul 2022 | India**

Collaborated with a team to design a comprehensive course syllabus; improved mentor assessment techniques and student comprehension methods; enhanced overall course effectiveness and learning experience.

Technical Skills

- **Engineering & Design Tools:** Fusion 360, SolidWorks, SketchUp; engineering drawings; DFM
- **Programming:** MATLAB (introductory numerical analysis and plotting); Python (basic scripting and problem-solving)
- **Prototyping & Fabrication:** FDM 3D printing (Cura); physical prototyping; CNC machines & power tools (A-Level Design & Technology coursework); soldering

Awards

- **Top 5 Finalist**, QUEERI Sustainable Development Competition (2020).