Danyal Gu

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Skills

Mechanical Design: SolidWorks, FEA (ANSYS)), AutoCAD, DFMA
Manufacturing/Machining: Lathe, Mill, Drill Press, Band saw, Jig Saw, 3D Printing
Programming: C++, Java, MATLAB, Python, Microsoft Office

Experience

University of Waterloo Formula SAE (UWFE) Sep 2025 - Present
Chassis Design Member *Waterloo, ON*

- Designed a brake line mounting system utilizing 20 standardized mounts to interface with the carbon fiber floor, resolving critical packaging constraints to ensure safe line retention
- Machined interference-fit assemblies and structural inserts from aluminum and steel stock, utilizing datum alignment on manual mills and lathes to hold strict dimensional tolerances within ± 0.01mm
- Performed post-process modifications on carbon fiber body panels, executing precision drilling to validate component fitment without compromising composite integrity
- Designed a 3D-printed welding fixture using in-context assembly references, creating a mechanical hard-stop to position the master switch below the helmet impact zone per FSAE safety rules
- Conducted ANSYS FEA structural simulations to validate rig components and determine torsional stiffness

Association of Korean-Canadian Scientists and Engineers (AKCSE UWaterloo) Sep 2025 - Present
Marketing Executive & Graphic Designer *Waterloo, ON*

- Represented AKCSE Uwaterloo at the Fall Open House, presenting engineering admission strategies and program insights to an audience of 100+ high school students and parents
- Designed on-brand digital and print marketing assets, including social media content and banners, to support campus outreach and STEM initiatives

Projects

Hand-Crank V6 Engine Model | *SolidWorks, DFMA, Additive Manufacturing* Dec 2025 - Jan 2026

- Designed a mechanically functional V6 engine assembly from scratch, engineering accurate 120-degree crankshaft phasing to enable realistic piston timing and interference-free rotation
- Applied Design for Manufacture / Assembly (DFMA) principles to adapt the digital model for 3D printing, creating custom mounting structures to resolve stability issues for floating components
- Constructed and validated the final prototype, confirming accurate kinematic function and ensuring the crankshaft rotated smoothly without binding

Retractable Mechanical Dart Launcher | *SolidWorks, Prototyping, Technical Reporting* Sep 2025 – Dec 2025

- Managed CAD integration and 3D printing for a team-based design project, producing 5+ custom components for a spring-powered launcher
- Engineered a custom gear system for the rotating target, calculating reduction ratios to control angular velocity and enable variable rotation speeds within the final assembly footprint
- Authored technical documentation regarding material selection and safety factors to validate the design within a 20+ page report

Education

University of Waterloo Waterloo, ON
Candidate for B.ASc. in Honours Mechanical Engineering, GPA: 3.75/4.0 *Sep 2025 - Apr 2030*

- President's Scholarship of Distinction (95+% Admission Average)
- Relevant Courses: Materials, Electrical Engineering, Mechanical Design