Gokulan Kumarananthan

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Education

Queensland University of Technology **Jul. 2022 – Present**
Bachelor of Engineering (Honours)(Mechanical) - GPA: 6.22 (7-point scale) *Brisbane, Queensland*

- QUT Motorsport (Formula SAE) | Suspension Team Member
- Dean's List for Excellent Academic Performance

Projects

Welded Connection Design Audit | *SolidWorks, MATLAB, ANSYS Workbench* **June 2025**

- Designed, analysed, and validated a complex 8-segment weld group for a wall-mounted pull-up bar using analytical calculations and ANSYS FEA to assess fatigue performance.
- Applied stress analysis, fatigue life prediction, and mesh convergence studies to validate structural integrity.
- Performed material analysis of stainless steel welded joints incorporating surface conditions, temperature effects, and reliability factors for commercial gym safety standards.
- Delivered technical documentation with mesh convergence validation and design recommendations ensuring compliance with AS/NZS 1554.1 welding standards.

Adjustable Roll-Centre A-arm Brackets (QUT FSAE) | *SolidWorks, ANSYS Workbench* **June 2024**

- Designed an adjustable A-arm bracket using SolidWorks, to significantly enhance speed and ease of roll-centre height adjustment, and allow for adjustable anti-dive and anti-squat configurations.
- Performed FEA using ANSYS Workbench to evaluate the fatigue life, deformation, and stress distribution of the A-arm brackets, ensuring optimised durability and performance.
- Conducted iterative design optimisations to reduce weight while maintaining structural integrity, to meet performance and safety requirements.

Reduction Split Torque Gearbox | *SolidWorks* **October 2024**

- Developed and modeled an 83x speed reduction gearbox in SolidWorks, achieving 20 Nm torque at 1500 RPM, and prototyped using acrylic to demonstrate functionality and manufacturing feasibility.
- Performed static and fatigue failure calculations for both prototype and steel versions, ensuring reliability and high efficiency under varying loads.
- Produced detailed SolidWorks drawings, including cut-away views, exploded assemblies, orthographic projections, and a bill of materials (BOM) to support manufacturing and assembly.

Skills

Technical Skills: SolidWorks, ANSYS Workbench, MS Suite
Interpersonal Skills: Feedback reception, Leadership in team-based environments, Attention to detail
Programming Languages: Python, MATLAB

Work Experience

QUT Motorsport Design Camp **Jan 2025 – Feb 2025**
Engineering Intern *Brisbane, Queensland*

- Led structural analysis and FEA for complete front and rear suspension redesign including A-arm brackets and upright components using SolidWorks and ANSYS Workbench
- Developed and validated MATLAB scripts for suspension member force calculations across front and rear assemblies, determining accurate force magnitudes and directional components based on FSAE conventions and free body diagram analysis.
- Reviewed FSAE 2025 regulations and managed top-level assembly integration, resolving critical component interference issues and ensuring compliance with suspension kinematics requirements including camber, caster, toe, and kingpin inclination specifications.

NumberWorks'nWords **Jul 2023 – Present**
Tutor *Brisbane, Queensland*

- Managed multiple students simultaneously in one-on-one and group settings, providing tutoring in Mathematics and English for Year 3 to Year 11 students.
- Enhanced communication and mentoring abilities by simplifying complex topics and fostering a positive learning environment, demonstrating strong interpersonal skills.