Anjan Melkote

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Education

University of Waterloo — Waterloo, ON
B.A.Sc. Mechanical Engineering, Honours Co-Op (GPA: 3.8/4.0, President's Scholarship) — *2022 – 2027*

Summary of Qualifications

- Designing production-intent CAD & 2D **GD&T/ASME Y14.5** drawings in **SolidWorks**, **CATIA V5**, **3DX**, **Onshape** & **NX**
- Skilled in **DFM/DFA/DFR** for CNC, plastic injection molding, metal stamping, casting, welding, bonding and thermoforming
- Proficient at using **RCA**, **FMEA**, **SIPOC**, **DoE**, & **Lean Six Sigma** to identify root causes, mitigate and resolve bottlenecks
- Experienced in leveraging **3D Printing**, **Laser-Cutting**, **Mill**, **Waterjet**, & **Lathe** to rapidly prototype and validate designs
- Experienced in **SolidWorks** Simulation, **ANSYS**, **SimScale** and **OpenFOAM** for thermal, static and CFD application

Experience

Mechanical Design Engineer Intern — May 2026 – Sep 2026
Tesla – Collision Repair Engineering — *Austin, TX*

- Designed **stamped** aluminum repair insert for rear-node corners to shield the casting from repeated suspension strike damage, converting CAE loads into geometry, load path, and weld/bond joinery so localized repair replaced full node replacement
- Drove a structural B-pillar change to a monolithic assembly, improving side-impact performance and reducing mass and **cost/VIN**; reviewed CAE, crash-test, pole/MDB, roof-crush, and head-impact data with senior engineers
- Owned end-to-end headlamp repairability initiative enabling plastic tab/housing repair vs. lamp replacement; aligned lighting, exterior and homologation on crash/pedestrian safety and drove **DFR** updates cutting spare inventory by **25%**
- Owned **structural** crossmember repair procedures (rear-frame, battery-center, 5th-wheel); implemented Huck spacer washers on the rear frame to correct fastener grip stack-up, removed **BIW** repair prereqs, and commonized fasteners, cutting **FRT** by **1.25** hrs

Mechanical Design Engineer Intern — Sep 2025 – Dec 2025
Alchemy Nano — *Kitchener, ON*

- Spearheaded reverse engineering of high-precision 3D scan data into **8+** production-grade **thermoforming** moulds for Tesla and BMW WPF programs; Owned the full **lifecycle** from scan mesh through CAD, PLM release, validation and final-product testing
- Developed and ran test trials, tuned temp/pressure profiles and revised dies to cut cycle time **15%** & raise first-time yield **10%**
- Automated 3D scan data processing using a **Python** pipeline, reducing manual data refinement and meshing time by **20%**

Manufacturing Engineer Intern — Jan 2025 – Apr 2025
Owens Corning Toronto — *Scarborough, ON*

- Owned end-to-end design of a triaxial UV detection assembly from concept through CAD, Prototyping, DFM/A, FEA, drawings, install, and ops validation; raised detection rate by **75%**, cut MTTR by **40%**; Implemented site-wide post-validation
- Designed an airtight hopper enclosure to reduce cullet damage, extend hopper lifespan by over a decade and save **$40,000**
- Conducted rapid testing through 3D-printed prototypes, delivering early-stage proof-of-concepts prior to fabrication in **Inventor**

Mechanical Design Engineer Intern — Sep 2023 – Dec 2023
Delta Elevator Co Ltd. — *Kitchener, ON*

- Produced part and tooling CAD drawings prioritizing **DFM/A** with **Inventor** and **GD&T**, validating designs via **ANSYS** FEA
- Improved various bracket designs by implementing self-locating features, reducing CNC setup times by **15%**
- Designed counterweight guard subassemblies, prioritizing **DFM/A**, using **Inventor** and **Vault**, reducing BOM costs by **15%**

Manufacturing Engineer Intern — Jan 2023 – Apr 2023
Skyjack Inc - Linamar Corporation — *Guelph, ON*

- Designed driveline components and improved **DFM/A** for high-volume vehicle assembly lines in **SolidWorks**, reducing manufacturing **BOM** cost by **19%** and supporting automated/manual production constraints
- Created, analyzed and presented technical automation reports using **PowerBI** and **Excel**, reducing downtime by **5%**

Mechanical Engineer — May 2023 – Present
UW Automotive Future Team (UWAFT) — *Waterloo, ON*

- Redesigned a 2023 Cadillac LYRIQ half-shaft in Siemens NX, achieving a **2.00** safety factor and **10%** mass reduction, and optimized geometry for machinability to cut manufacturing time by **15%**
- Designed rear electric motor subframe and mounting system for a 2026 Jeep Cherokee in **Siemens NX**, defining load cases across acceleration, regenerative braking, cornering, and off-road impact that were adopted as the team's baseline architecture
- Performed structural and fatigue analysis in **ANSYS** on motor mounts, subframe, and chassis interfaces, achieving a **2.15** safety factor while reducing mass by **12%** and maintaining 8 inches of ground clearance under full suspension travel
- Applied DFM/A and GD&T principles across mount and subframe design, consolidating fasteners and simplifying weld joints to cut projected assembly time by **18%**, while coordinating packaging interfaces with Electrical and Controls subteams

Technical Skills

CAD/CAE: CATIA V5, 3DX, SolidWorks, Onshape, Inventor, Siemens NX, AutoCAD, PLM, Tolerance Stack-ups, ANSYS, HyperMesh
Tools & Methods: GD&T, DFM/DFA, FEA, FMEA, Lean Six Sigma, BIW, VBA, MATLAB Simulink, Python, C/C++, Power BI