Denzil Rivaldo Amalraj

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Education

University of Michigan — Dearborn, MI
Master of Science in Mechanical Engineering (CGPA: 3.73 / 4.00) — *Sep 2024 - May 2026*

Sri Eshwar College of Engineering — Coimbatore, TN
Bachelor of Engineering in Mechanical Engineering (CGPA: 3.14 / 4.00) — *Jun 2017 - Apr 2021*

Experience

CAD Engineer — Oct 2022 - Mar 2024
Sysnautix Technologies — *Coimbatore, TN*

- Designed & Drafted BIW fixtures for 7 plus automotive OEMs using Autodesk Inventor and SolidWorks, meeting ASME Y14.5, SAE and NAAMS standards, including BOM'S.
- Delivered 2D/3D drawings via Teamcenter with less than 2% error rate over 100 plus assemblies.
- Standardized drawing templates and dimensioning protocols, cutting design errors by 95% and improving peer review efficiency by 30%.
- Modeled complex surfaces and assemblies in SolidWorks for prototype vehicle components, contributing to an R&D flying car initiative.
- Managed BOMs in Teamcenter PLM, ensuring traceability and zero version mismatches across 7 plus concurrent OEM projects.
- Mentored and onboarded 3 junior designers, leading CAD upskilling sessions that boosted team output by approx 20%.

Graduate Engineering Trainee — Oct 2021 - Sep 2022
Sysnautix Technologies — *Coimbatore, TN*

- Created 3D fixture designs and conducted dimensional stack-up analysis in SolidWorks/Inventor to support pre-production validation.
- Implemented GD&T and tolerance optimization to improve fit-up and manufacturability during early-stage concept iterations.
- Coordinated cross-functional reviews to troubleshoot design bottlenecks, accelerating design release timelines.

Projects

Anydesk Storage Organizer | *SolidWorks, DFM, Pruca Slicer, Digital manufacturing* — Sep 2024 – Dec 2024

- Designed a desk organizer in SolidWorks using Design for Manufacturing (DFM) and ergonomic principles.
- Performed FEA on load-bearing components; optimized orientation and slicing in 3D printer software to reduce support usage.
- Delivered physical printing, epoxy-based assembly, and final testing with strong dimensional accuracy and finish quality.

Analysis on Ford Ranger Torsion bar | *SolidWorks, Ansys workbench, Mesh Convergence* — Jan 2025 – Apr 2025

- Modeled a 2011 Ford Ranger torsion bar and conducted non-linear static FEA in Ansys.
- Simulated torque-induced stresses; identified critical failure zones via von Mises analysis and total deformation.
- Applied mesh convergence strategy to validate result stability across element refinements.

Technical Skills

CAD & Documentation: SolidWorks (CSWA), Autodesk Inventor, NX, AutoCAD, Creo, Catia V5
Simulation & FEA : Ansys Mechanical, basic MATLAB & Simulink
Design Expertise : BIW Fixtures, Reverse Engineering, Geometric Dimension and Tolerance (GD&T), ASME Y14.5, Tolerance Stack-ups, Design for Manufacturing
Tools & Platforms : Teamcenter, MakerBot, Prusaslicer, meshmixer, Microsoft Office