

VASANTH RAVIN VINCENT PAUL

Senior Mechanical Design Engineer • Electromechanical Systems • Simulation-Driven Hardware Development

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Professional Summary

Mechanical Engineer with deep expertise in electromechanical systems design, simulation-driven development, and end-to-end hardware validation. Proven ability to own complex subsystem architecture, make critical design trade-offs, and ship hardware in fast-moving R&D environments. Skilled in CAD, FEA, CFD, Python automation, NVH, and precision mechanism design.

Technical Skills

Simulation & CAE: ANSYS (Mechanical, Ansys Fluent), Altair HyperWorks (HyperMesh, FEA, CFD, Multibody Dynamics)
Design & Manufacturing: SolidWorks, Siemens NX, PDM, GD&T (ASME Y14.5), Tolerance Stack-Up, Precision Mechanism Design, DFMEA, DVP&R, 3D Printing, RCA, APQP, Design for Six Sigma, 8D, NVH, AutoCAD
Programming & Data: Python (NumPy, Pandas, Matplotlib, Plotly), MATLAB, DAQ, LabVIEW, Automated Data Processing, SciPy, Git, Jupyter

Work Experience

Inmotive Inc. – *Senior Design Engineer* | Dec 2025 – Present

- Led end-to-end mechanical design and architecture for 3+ electromechanical drivetrain iterations.
- Accelerated next-gen platform development from design to Phase 1 testing in 1 year (vs. typical 18–24 months).
- Integrated simulation-driven DFM optimization, achieved 25% mass and ~30% part count reduction while maintaining performance.
- Built and owned CAE simulation workflows (ANSYS, Altair HyperWorks), eliminating 36 physical prototypes and avoiding \$100K+ in costs.
- Led DFMEA and DVP&R planning; partnered cross-functionally with controls, firmware, and manufacturing.
- Managed cross-functional project deliverables, defining detailed project scopes and maintaining adherence to budget and scheduling targets.
- Mentored 5+ engineers on DFSS and standardized design workflows.

Inmotive Inc. – *Design Engineer* | June 2023 – Nov 2025

- Designed and released 50+ components using SolidWorks PDM with 10–25 micron precision, GD&T, and Tolerance Stack-Up.
- Integrated DFM/DFA and PDM considerations to improve manufacturability and minimize tooling risks for scalable production.
- Executed prototype builds, dynamometer testing, and precision inspection; analyzed DAQ datasets to close the loop between physical and virtual results.
- Developed Python automation tools for Dewesoft/MoTeC datasets, cutting manual data post-processing time by ~40%.
- Validated design performance by performing engineering calculations (force, torque, thermal analysis) and integrating motor-driven actuator and motion systems.
- Contributed to early-stage R&D on lightweight mechanisms and simulation-driven optimization in fast-moving problem spaces.

National Training Institute LLC – *Mechanical Engineer* | July 2020 – Dec 2020

- Designed and validated Oil & Gas components using CAD, FEA, CFD and GD&T
- Reduced non-compliance by 10% via structured design reviews.
- Developed comprehensive engineering drawings and specifications, ensuring compliance with GD&T (ASME Y14.5)
- Provided design and reliability engineering support by analyzing mechanical systems and identifying opportunities for component improvement.
- Provided project support by analyzing and interpreting multidisciplinary project related documents including mechanical, electrical, and P&IDs.

Education

University of Toronto | Jan 2023

Master of Engineering – Mechanical & Industrial Engineering

Vellore Institute of Technology | June 2020

Bachelor of Technology – Mechanical Engineering