Ashwin Sudarshan

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Summary

Mechanical engineer with manufacturing experience at Bosch and Novelis and hardware design/testing expertise at UMD CALCE. Achievements include cutting maintenance time by 35% and saving $30K annually. Skilled in CAD, FEA, and GD&T; experienced in thermal, HAST, and shock testing; proficient in Python and Power BI for automation.

Education

University of Maryland — College Park, MD
Master of Science in Mechanical Engineering, GPA 3.7 — *Aug. 2023 – May 2025*

RV College of Engineering — Bangalore, India
Bachelor's in Mechanical Engineering — *Aug. 2018 – Aug. 2022*

Technical Skills

CAD & Drawings: Creo, SolidWorks, CATIA V5, Inventor, AutoCAD, GD&T, tolerance stack-up, drawing release
FEA: ANSYS, ABAQUS, thermal/structural FEA
Test & Failure Analysis: Thermal cycling, HAST, mechanical shock; SEM/EDS
Data & Automation: Python (automation, data handling), MATLAB/Simulink, Power BI, Microsoft Excel
Quality & Manufacturing: DFM/DFA, PFMEA, SPC, Gauge R&R, Lean/Six Sigma (Black Belt)
Certifications: Six Sigma Black Belt, Agile(Atlassian), Bosch-certified in 8D

Work Experience

Mechanical Engineer (Research Assistant) — Feb. 2025 – present
University of Maryland — *College Park, MD*

- Designed and released production-ready Altium CircuitMaker PCB layouts with daisy-chained dies (SiP, SoC, RDL, interposers) to enable real-time continuity monitoring during accelerated reliability testing.
- Fabricated, assembled, and wired test coupons; set up continuity-monitoring systems and executed thermal cycling, HAST, and mechanical shock in accordance with defined test protocols.
- Documented and analyzed post-stress failures, providing data to support reliability assessments and life-prediction model development.

Mechanical Engineering Intern — Jun. 2024 – Aug. 2024
Novelis — *Oswego, NY*

- Re-engineered burner changeout system in Autodesk Inventor, validated in field trials; cut maintenance time by 35%, saved 150 tech-hours/year, and projected $30K/year cost savings.
- Performed volumetric studies on three industrial furnaces and recalibrated radar-level sensors, preventing four overfill incidents/year
- Standardized new burner setup procedures with zero safety incidents during adoption.

Mechanical Design Engineer — Apr. 2022 – Jul. 2023
Bosch — *Bangalore, India*

- Led external gear-pump end-cover redesign from Creo CAD through detailed GD&T drawings and ABAQUS FEA validation under 100 bar cyclic loads; improved volumetric efficiency by 2%, raised fatigue safety factor from 1.5 to 1.8, and cut material cost by $0.25/unit in high-volume production.
- Created parametric FEA workflows reducing setup time by 26%, enabling faster design iterations for multiple pump variants.
- Developed Power BI dashboards tracking 45 quality metrics across APAC; identified three high-impact failure modes, helping cut defect rates by up to 15%.
- Coordinated with 15 suppliers quarterly to reinforce design/quality standards, reducing delays by 8% and compliance issues by 35%.