Yaswanth Namburi

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Summary

Aerospace structural design and analysis engineer with expertise in structural design, operational systems setup, and facility infrastructure development. Architected facility infrastructure and engineering processes at LAT Aerospace, establishing laboratory workflows and evaluating equipment procurement for prototype development. Contributed to **India's ISRO Gaganyaan human space mission, designing crew module structures** for parachute deceleration, water impact, and transportation loads through detailed finite element analysis with geometric and material nonlinearities. Proficient in FEA automation (MATLAB, Python), systems integration, vendor collaboration, and process optimization to deliver high-reliability aerospace solutions.

Education & Scholastic Achievements

B.Tech in **Mechanical Engineering** from **IIT Delhi** with **GPA 8.4** - July 2017-May 2021
Secured **AIR 721 rank** in **IIT JEE**

Skills

FEA tools: ANSYS Mechanical, ABAQUS, Hypermesh
CAD tools: Siemens NX, SolidWorks, AutoCAD, ARES
Programming: MATLAB, Python
General: LaTeX, MS Word, Excel, PowerPoint

Experience

LAT Aerospace Pvt. Ltd. **April 2025 – November 2025**
STOL (Short Take-Off and Landing) Aircraft

- **Leading the design and analysis of STOL aircraft** structural components, ensuring robust performance under flight and ground loads within mass budget.
- **Established end-to-end manufacturing processes establishment**, from conceptualization and prototyping to assembly.
- **Established a new aerospace lab**, developing facility layouts and process workflows.
- **Identified and evaluated advanced machinery required** for composite manufacturing, including CNC routers, ovens, etc.
- Built partnerships and negotiated with vendors to source critical materials, machinery and tools to support facility expansion.

Indian Space Research Organisation - ISRO **September 2021 – March 2025**
Crew Module

- **Designed crew module structure** to withstand parachute deceleration, water impact, and transportation loads for carrying out integrated parachute drop tests.
- **Collaborated with multidisciplinary teams** including material specialists, system engineering, and integration teams to integrate design considerations across disciplines.
- Implemented innovative solutions to mitigate stresses during high-impact scenarios, enhancing structural integrity and reliability.
- **Developed detailed finite element models** featuring shell-beam modeling, material and geometric nonlinearities, couplings, and contact simulations for both shell and solid elements.
- Executed in-depth **linear and non-linear static analyses using ANSYS Mechanical** to validate that the structure complied with design requirements and standards.
- **Created sub-routines** for extracting simulation data from various joints and carried out **data analysis** utilizing MATLAB and Python.
- Generated codes to automatically perform calculations for **bolted and welded joint margins**.
- Reviewed and supervised the **generation of CAD models and detailed fabrication drawings**.

- Performed **in-stage inspections at the industry level** to ensure compliance with the specifications during the manufacturing process.
- Conducted **thorough assessments of deviations** from the specifications, and **developed comprehensive salvage plans** to address and rectify identified deviations, ensuring minimal impact on overall quality and timelines.
- As part of the salvage effort, employed **3D Coordinate Measuring Machine (CMM)** technology to identify and **map distortions due to welding** in the fabricated hardware.
- Analyzed 3D data to strategically position and configure brackets at various locations on the hardware, addressing and compensating for distortions caused by welding to ensure precise alignment.
- Generated a detailed **qualification test plan** with adequate strain gauges and LVDTs to monitor the structural behavior under various loading conditions against predictions.
- Coordinated with multiple agencies to successfully carry out structural testing.

Design of Skin Stringer Structure

- Designed a skin stringer structure for spacecraft module by **optimizing stringer locations** to enhance structural strength and stiffness for lift-off and separation loads during the rocket launch.
- Performed **analytical calculations for skin-stringer design** along with FE model generation and analysis in ABAQUS.

Designed multiple ground support structures for satellite handling, integration, and transportation, ensuring load capacity and alignment requirements.

Project Management

- Coordinated concurrent structural analysis efforts across multiple spacecraft modules, managing FEA workflows, design iterations, and validation activities to meet aggressive program schedules while maintaining design compliance with ISRO specifications.
- Managed cross-functional collaboration between material specialists, system engineering, integration teams, and manufacturing partners to ensure seamless design execution and timely resolution of technical challenges.
- Developed and executed comprehensive test plans with instrumentation strategies (strain gauges, LVDTs), coordinating with multiple agencies to conduct structural qualification testing and validate design performance under critical load scenarios.