JAFFAR SADIQ A **Mobile**:+919444503712/**E-Mail**:aerojaffar@yahoo.com

PROFILE SUMMARY

- Bachelors in Aeronautical Engineering from Aeronautical Society of India, New Delhi with *a total of 8 years* of experience in aerospace industry including 2 years in production domain with previous experience of almost 6 years in aerospace design.
- Previously worked as Engineer in Tech Mahindra from January 2018 to October 2023.
- Previously worked as Project Engineer from May 2015 till December 2017 in National Aerospace Laboratories, CSIR, Bangalore.
- Comprehensive knowledge of Part Design, Generative Shape Design, Sheet Metal and Assembly workbench of CATIA v5.
- Proficient in identifying projects risks, handling large uncertainty in data, incorporating data in complex mathematical models and benchmarking the results.

PROFFESIONAL EXPERIENCE

Engineer – Tech Mahindra (Jan 2018 – Oct 2023)

Projects:

- **Spirit AeroSystems: (Feb 2021 – Oct 2023)**
  This project involves creating First Article Inspection Reports (FAIR's) which includes analyzing SAP plan, reading manufacturing drawings and working on CATIA workbench for understating input requirements. This project requirement involves reading CATIA manufacturing drawings to check out dimensions of various parts and assemblies manufactured thereby facilitating creation of First Article Inspection Reports.
- **Combustion Chamber Thermal Analysis of Aircraft Gas Turbine Engine using StarCCM+ and CATIA v5 (Jan' 18 – Till Nov '19)**

  The purpose of this project is to find out temperature distributions across different regions of the combustion chamber of turbo jet engine for various inlet flow parameters and across internal wall in order to determine suitable material required to withstand high temperatures developed.
- **Design Optimization of Axial Flow Compressor using StarCCM+ and CATIA v5 (Dec' 19 – Till Jan '21)**

  This project is carried out to simulate flow parameters such as stage pressure ratio, total pressure ratio in a Axial Flow compressor at various flight conditions thereby facilitating optimum blade design. Primary purpose of this project involves predicting the pressure ratio as well as efficiency. The given geometry is CFD modelled in StarCCM+, followed by a steady flow run for extracting pressure loads at various points.

Project Engineer-- National Aerospace Laboratories, CSIR, India (May'15 - Till Dec'17)

Projects:

- **Store Separation Analysis of an Aircraft using Dynamic Fluid Body Interaction using unsteady Euler CFD Solver: Tools Used -- StarCCM+ and CATIA v5 (May' 15 – Till Dec'17)**
  This project is to find out the aerodynamic loads acting on bombs and Missiles of a fighter aircraft at various attitudes as well as to calculate the minimum distance between a store (Bomb or Missile) and neighboring aircraft parts upon its release from aircraft in order to predict its safe release at various flight conditions. Initial stage of the project involves creating air tight geometry using Generative Shape Design workbench of CATIA v5.

- **Fluid Structure Interaction of Aircraft Wing using File Based Coupling involving StarCCM+ (CFD) and MSC NASTRAN (FEA): (June '17 to August'17)**
  The purpose of this project is to find out the effectiveness of file-based coupling using StarCCM+ and MSC Nastran. The given model is CFD modeled in StarCCM+ followed by a steady run for extracting pressure loads acting on the surface. These loads are applied on to the FEA model in MSC NASTRAN for calculating displacements obtained which is again brought to CFD solver StarCCM+ for extracting pressure loads in the morphed position. This loop is repeated for a desired total physical time.

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- **Transient Simulation of ONERA wing using Open Source code SU2 for Analysis and ICEM CFD for Meshing: (January '17 to March' 17)**
  Structured Hexa Meshing of Onera wing in ICEM CFD with boundary layers highly resolved for predicting flow characteristics near the surface walls. The Model is solved in SU2 using Navier Stokes SST turbulence model. This problem is run for a total physical time of 0.6sec
- **Steady Flow Simulation of Generation Fighter Aircraft for analyzing pressure coefficients across various span sections of the wing from wing root to tip: (Aug '16 to Sep'16)**
  This project mainly focuses on the aerodynamic capabilities of generation fighter aircraft. To serve this purpose, various section are taken across the wing right from root to tip of span in order to find the pressure coefficients across those airfoil sections after steady flow analysis. Geometry generation is done in CATIA v5 followed by CFD Modeling and post processing the results in StarCCM+.

- **External Aerodynamics of Benchmark Super Critical Wing (BSCW) in Transonic conditions using StarCCM+ and CATIAv5: (June '16 to July '16)**
  The project is carried in StarCCM+ with air tight model being created in CATIA v5 followed by CFD modeling in StarCCM+. Since transonic conditions are always critical the fluid domain is properly resolved with prism layers near the wall and volumetric controls in the wake in order to find out the effect of turbulence in the boundary layers. Here, the aerodynamic loads acting on the wing are of primary interest and has been calculated.

ACHIEVEMENTS

- Elected as Graduate Member of "The Aeronautical Society of India", New Delhi with membership number G-12272 on 16 July 2013
- National Topper in Section B paper "Management of Systems" with a score of 85% in December 2010 session of A.M.Ae.S.I (B.E Aeronautics).

COMPUTATIONAL SKILLS

✓ StarCCM+	✓ ICEM CFD	✓ CatiaV5
✓ Abaqus	✓ HyperMesh	✓ MSC Nastran
✓ SU2	✓ MSC PATRAN	✓ SolidWorks

EDUCATION

- Qualified in GATE 2013 in Aerospace Engineering
- B.E Aeronautical from Aeronautical Society of India, New Delhi in 2013

ACADEMIC PROJECTS

- **Comparative Study of Shock Wave Interactions in Pointed Slender Nose Body and Blunt Nose Body in High Supersonic Flows: (BE Project)**
  The purpose of this project is to find out the design (whether pointed slender nose or blunt nose body) that is better for high speed flights (High Supersonic and Hypersonic flight regimes). For this study, two geometries are considered, one is pointed slender nose body and the other one is blunt nose body, in order to examine the flow properties downstream of these two bodies for the same upstream conditions. Important conclusion that could be arrived from this project is that with very high speeds greater than Mach 5 or so, it is better to detach the shock wave from the nose, so that we could control aerodynamic heating and blunt nose would be the better choice.

- **Analysis of Space Frame Truss for examining rotation of a member due to applied loading using MSC PATRAN and NASTRAN: (AUFRG Institute, Anna University, Chennai)**
  In this project, a space frame truss is considered which is modeled in MSC PATRAN. The purpose of this work is to find out the rotation of a member of the truss due to applied loads. MSC NASTRAN is the solver used with the results post processed again in PATRAN.

REFERENCES

- Kathiravan G, Tech Lead, Tech Mahindra, India.(KG00797455@techmahindra.com)
- Shashank Kumar, Senior Engineer, Tech Mahindra, India.(SK00622198@techmahindra.com)