ADITYA SAINI

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EDUCATION

Ph.D., Aerospace Engineering
Applied Aerodynamics
North Carolina State University, 2017
GPA: 3.89/4

Masters, Aerospace Engineering
Applied Aerodynamics
North Carolina State University, 2014
GPA: 3.87/4

Bachelor of Tech., Mechanical Engineering
Indian Institute of Technology, 2012
GPA: 7.94/10

SKILLS

- Statistical Modeling, Fault Diagnosis, Reliability Calculations, FMECA, Predictive Analytics
- Machine Learning & Data Engineering
- Signal Processing, Feature Extraction
- Design of Experiments, Data Acquisition, Post-Processing, Scripting & Automation
- TensorFlow, PyTorch, Pandas, Scikit-learn, NumPy, Matplotlib, Seaborn, Reliability toolbox
- Python, MATLAB, Fortran
- Star-CCM+ and ANSYS (CFX, FLUENT)
- Image Processing: OpenCV
- Databases: PI, eDNA, InfluxDB

WORK EXPERIENCE

Technical Manager, SmartMachine Applications
The DEI Group, *April 2021 - Present*

- Creating and supporting all the technical and procedural requirements for developing, testing, delivering, and sustaining DEI's SmartMachine based solutions.
- Managing a multidisciplinary team of engineers (Mechanical, Nuclear, Aerospace, Electrical) and software developers.
- Expanding the application of SmartMachine concept to complex systems, such as gas turbines, wind turbines, hydro turbines, and marine diesel engines.
- Validating existing analytics modules, such as anomaly detection, outlier & sensor error detection, reliability projections, Bayesian inference, as well as defining and implementing new analytics capabilities.
- Collaborating with the software team to improve and enhance software features and performing QA testing.

Reliability Engineer
The DEI Group, *April 2018 – April 2021*

- Successfully deployed solutions for condition-based monitoring of multimillion-dollar assets, such as gas turbine engines, hydro-turbines, and marine diesel engines.
- Continuously Worked with the clients to present the project, discuss the reports and analysis of the results.
- Led the research and development of failure-indicating features from high-speed data, such as vibration waveforms, pressure waves, proximity probes, etc. to enhance diagnostics capabilities in multiple projects.
- Spearheaded the integration of a thermodynamic performance monitoring package into the existing software framework which resulted in getting new clients onboard.
- Designed Bayesian belief networks for the determination of failure probability (health/degradation) associated with different failure modes in power generation systems.
- Developed test cases and simulations for the testing and validation of SmartMachine product. Provided insights and feedback for improvements.

Research & Teaching Assistant
North Carolina State University, *March 2013 – April 2018*

- Developed a novel technique (LEFS algorithm) for aerodynamic parameter estimation and stall detection.
- Simulated & analyzed CFD data (steady and unsteady) and automated CFD post-processing and data analysis using Tecplot & MATLAB.
- Conducted wind-tunnel tests for validating low-order methods. Designed & fabricated experimental models and setups for investigating the flow in different scenarios, such as flow past airfoil models, airfoil in the wake of a cylinder, flat plate with bluff bodies etc.
- Educated students by developing GUI's/animations and experimental demonstrations in the wind-tunnel and controls lab.