Alireza Shahrabi Farahani

alireza_shahrabi@outlook.com | (672) 965-8967 | Burnaby, BC | linkedin.com/in/alireza-shahrabi

Professional Summary

Mechanical engineer specializing in turbomachinery with expertise in gas turbine design and optimization, including proven success in enhancing compressor performance and power output. Extensive experience with industrial and heavy-duty gas turbines, delivering advanced technical solutions, utilizing AI-driven design and modern 3D airfoils, to align with global sustainability goals. Adept at leading projects from concept to validation, achieving performance and efficiency targets through rigorous technical oversight.

Key Qualifications

- 14+ years of experience in turbines and compressors performance enhancement.
- Extensive CFD experience using StarCCM+, ANSYS-CFX, and 1D/streamline methods.
- Led compressor upgrades improving output power by 8% and reducing design time by 50%.
- Application of AI for airfoil design and turbomachinery performance improvements.
- Proficient in GasTurb, Python, MATLAB for system modeling and optimization.

Professional Experience

Consultant July 2024 – Present
Arman Sepehr Vista, Remote

- Spearheaded the performance upgrade of a triple-shaft gas turbine, providing key advisory that resulted in a **10% increase in output power**.
- Conduct comprehensive assessments of gas turbines to identify and capitalize on opportunities for efficiency improvements.
- Lead workshops and training sessions to build team competency in advanced aerothermal analysis and the application of CFD computational tools.

Lead Engineer Jan. 2016 – Dec. 2023
Turbotec, Tehran, Iran

- Oversaw the design process for axial flow compressors, emphasizing mechanical robustness, operational efficiency, and manufacturing feasibility improvements.
- Tested and validated upgrades to the IGT-25(SGT-600) gas turbine using advanced airfoils and 3D Design, increasing output power by 5%.
- Redesigned Frame 9 and V94.2(5) gas turbines to increase output power by 8%.
- Reduced the compressor design process time by 50% through the development of an AI-driven airfoil family.
- Drove product performance enhancements by collaborating with R&D teams to analyze test data, isolating key variables to guide design improvements.

Research and Development Engineer Aug. 2010 – Jan. 2016
Turbotec, Tehran, Iran

- Performed CFD analysis on compressors and turbines to generate characteristic maps and guide upgrade strategies.
- Automated design processes and applied numerical optimization, reducing analysis time by 50%.
- Investigated the effects of fouling, corrosion, and manufacturing defects on compressor performance.
- Researched gas turbine sealing techniques and their impact on performance.

Education

Master of Science in Mechanical Engineering Sep. 2008 – May 2011
Amirkabir University of Technology, Tehran, Iran

Thesis: Modeling of Tip leakage Flow in Axial Flow Turbines

Bachelor of Science in Mechanical Engineering Sep. 2003 – Sep. 2008
Iran University of Science and Technology, Tehran, Iran

Technical Skills

- **Core Competencies:** CFD Analysis, Aerodynamic Optimization, Fluid-Structure Interaction
- **Turbomachinery Tools:** ANSYS-CFX, StarCCM+, TurboGrid, MISES, ConceptNrec, BladeGen, AxSTREAM
- **CAD Software:** Siemens-NX, Solidworks
- **Programming:** Python, MATLAB
- **Machine Learning & AI:** Python (Scikit-learn, TensorFlow), Neural Networks, Optimization Algorithms
- **Soft Skills:** Teamwork, Problem-Solving, Cross-Functional Communication, Technical Writing