



Propulsion Department – Thermofluids Engineer

About the Company

3D Tactical Systems is a leading aerospace company with over a decade of operational expertise. The company delivers pioneering UAV and UAS solutions that cater to a variety of applications. Specializing in the analysis, design, integration, and testing of long-range and high endurance drones, the company is at the forefront of rapid prototyping cutting-edge solutions for its clients.

Our small yet highly qualified team diligently works towards achieving our mission statement, fostering a dynamic working environment while providing valuable opportunities for personal growth and development. Good company culture and collaboration are the core attributes that the company upholds to ensure it achieves its long-term objectives. As a rapidly expanding force, 3D Tactical Systems seeks exceptional talent to contribute to our innovative aerospace solutions.

Company Website: www.nextech.online

Job Description:

We are looking for a passionate engineer with a solid background in thermodynamics, fluid flow, and dynamic analysis to join our Thermofluids team. As a Thermofluids Engineer, you will contribute to the analysis, design validation, and future improvements of 3DTS's propulsion department. Day to day, you will be expected to analyse test data, define loads and environments, perform detailed simulations and physics-based analysis, guide design, and help validate analysis, design, and system performance through test. Scope of work may additionally extend to supporting ground and flight test systems, propulsion development, flight operations, and customer interaction.

Duties and Responsibilities:

- Perform, validate, and document detailed CFD analyses of propulsive components including:
 - Compressible flow (choked flow, Aerodynamics)
 - Incompressible flow (internal, two phase)
- Perform heat transfer simulations (conduction, convection, and radiation) including:
 - Component thermal analyses
 - Transient thermal response
- Perform, validate, and document thermofluid analyses of primary and secondary system components, including:
 - Model development and coding
 - Numerical Analysis
 - Material selection
 - Performance trade-off studies
 - Performance optimization
- Work closely with design and test engineers to iterate through design concepts, determine test requirements, and demonstrate positive margins.
- Process and interpret ground test and flight data, including:
 - Determining if components remain within safety critical bounds.
 - Comparing sensor data across multiple tests to detect out-of-family results.



TACTICAL SYSTEMS

- Identifying and resolving sensor configuration issues (grounding, calibration, damage, naming etc.).
- Using a strong understanding of physical principles (e.g., heat transfer, flow, material properties, etc.) to determine the root cause of anomalies through data analysis.
- Conduct peer reviews of analyses.
- Collaborate with other departments and other multi-disciplinary projects.
- Provide system and subsystem level integration and testing support in RSA and at clients abroad and provide recommendations based on analysis.
- Write design, test, and other technical project reports/documents.

Experience and Requirements

- Bachelor's degree in mechanical engineering, aerospace engineering, or related field.
- 3+ years of experience, ideally from the Aerospace, Automotive or Marine industries.
- Strong understanding of physical principles (heat transfer, electronics, internal flow, aerodynamics, etc.).
- Fluid engineering experience around pressure loss, valves, and sensors.
- Demonstrated experience with one or more industry standard CFD packages: Fluent, CFX, STAR-CCM+.
- Experience in Python and associated scientific packages: numpy, pandas, scipy, matplotlib.
- Demonstrated thermal modelling of components, networks, and lump masses.
- Experience with experimental test methods, sensor selection and data post-processing / interpretation (thermocouples, pressure transducers, accelerometers, strain gauges, microphones etc.).
- The ability to work to deadlines within a high-pressure environment.
- Fluent in English.

Preferred Skills

- Master's degree or greater.
- Experience in the design of turbomachinery components.
- Familiarity with using SolidWorks CAD.
- Proficient using ANSYS Workbench.
- Experience working in a fast-paced development program.

Important to note:

- Own car is essential.
- Permanent role with a 3 months' probation period.
- Background check and references required.

At 3DTS, we embark on a mission to elevate the possibilities of unmanned aerial vehicles. The journey isn't simple; it demands diligence, unwavering determination, constant innovation, collaborative teamwork, unyielding grit, and a steadfast commitment to conquering seemingly insurmountable challenges. We take pride in supporting one another, setting aside egos, and immersing ourselves in tasks both significant and minute. If this sounds like you then join our pioneering team and launch your career to new heights today!