POSITION TITLE:
Senior Gas Turbine Mechanical Design Engineer

POSITION DESCRIPTION SUMMARY:
TurbAero is developing a line of small gas turbine engines for application to light aviation and power generation and is seeking a well-rounded and experienced structural design engineer to oversee all engine machine design and analysis activities. The ideal candidate is a practical engineer with significant experience in designing robust mechanical components for small gas turbine engines and is a self-starter who would be excited about helping a small aviation start-up launch a family of gas turbine engines. This is an intensive hands-on role where the incumbent will not only conduct the design of the mechanical components but will also use their leadership skills to manage their small team and external parties.

PRINCIPAL DUTIES AND RESPONSIBILITIES:
- Overall responsibility for the design and development of static structures and rotating components for a family of small gas turbines to achieve functionality, integrity, durability, reliability, and production requirements. The candidate will perform design/analysis where their background and skills allow, and will oversee the work of others, including subcontractors, in other mechanical design and manufacturing areas.
- Conduct mechanical design and development of shafts, seals, bearing housings, disk/blisks, rotor-shaft attachments, and engine frame with considerations for flight maneuver loads.
- Carry out FE analyses of turbomachinery components including thermal and stress, as well as modal, harmonic and spectral vibration, and fluid-structure-interaction analyses.
- Conduct full engine FE analysis, carry out failure analysis, and predict fatigue life (LCF & HCF).
- Specify materials, heat treatments, and fabrication methods for components.
- Guide, review, and approve component and assembly manufacturing drawings.
- Oversee gearbox design and development, rotordynamic analyses of high-speed rotor assemblies, and damped and undamped bearing design and selection.
- Work closely with other design team members to ensure structural integrity.
- Troubleshoot the prototype and production engine mechanical component issues.
- Select and manage subcontractors working as needed to design/analyze mechanical components.
- Prepare or review technical reports documenting design/analysis results and status.

EDUCATION AND EXPERIENCE:
- Education: Ph.D. in Mechanical or Aerospace Engineering or research master's degree with relevant gas turbine design experience strongly preferred.
- Experience: 10+ years of mechanical design/analysis experience with a gas turbine design company.
- Abilities:
    - Must have a strong fundamental understanding of gas turbine mechanical design, materials, stress analysis, fatigue/fracture mechanics, and rotordynamics to carry out conceptual design projects through prototype and flight testing.
    - Significant experience in the specification, design, implementation, and testing of gas turbine engine components.
    - Proficiency in utilizing computational tools such as ANSYS Mechanical and CAD tools such as SolidWorks to model and analyze complex 3-D geometries.
    - Familiarity with rotordynamics and fatigue analysis tools is an asset.
    - Experience in managing/mentoring junior engineers and technicians and supervising subcontractors is essential.
    - Self-starter, able to work independently in a small company environment.
    - Demonstrated leadership capability; excellent communication, teamwork, and interpersonal skills; committed to working collaboratively; able to analyze and resolve problems.

OTHER POSITION INFORMATION:

- Reporting – The candidate will report directly to the Chief Technology Officer.
- Location – The design office is in Ottawa, Canada but remote work is negotiable. US and international travel may be required.
- Salary and Benefits – TurbAero offers a competitive salary and comprehensive benefits package.