



SENIOR FADEC SYSTEMS ENGINEER/ANALYST – UAM ELECTRIC PROPULSION

Corporate Description

MANNARINO Systems & Software Inc. is a leader in COTS software products and providing safety-critical systems / software / programmable hardware engineering and certification services to the aerospace, defense, space, simulation, rail & power generation industries. We work with many of the top players within their industries giving our employees exposure to the most interesting and challenging development projects. This stimulating and invigorating working environment allows our team to be at the technological forefront constantly broadening their expertise and honing their skillset to fulfill the ever-growing global high-tech market needs.

The MANNARINO culture is focused on high quality, hard work, professionalism and team work within a highly respectful, motivating atmosphere geared towards long-term business growth.

As a member of our team, you will benefit from:

- a comprehensive group insurance and RRSP plan
- a flextime policy with paid overtime
- discretionary bonuses
- a fitness reimbursement program
- other office perks such as catered weekly lunches and free hot beverages (espresso, coffee, hot chocolate and tea)
- regular company outings

MANNARINO is a privately-held Small & Medium Size Enterprise (SME) and was recently awarded the [AIAC's Innovation Technology Award](#)

Career Opportunity and Primary Roles / Responsibilities

MANNARINO is engaged with a major industry leader developing a Full Authority Digital Electronic Control (FADEC) for an electric propulsion unit installed in an Autonomously and/or Remotely Piloted Aircraft System (A/RPAS) targeted for the Urban Air Mobility (UAM) market. We are currently seeking senior FADEC systems engineers/analysts to support the development of an electric propulsion unit FADEC system. The positions are based in Montreal.

The candidate's excellent technical skills will be used to develop, test and maintain sub-system specifications. Primary responsibilities include reading and understanding powerplant systems specifications, decompose the powerplant system specifications into powerplant control sub-system specifications and software requirements documents in accordance with company and industry standard methodologies. Involvement is all aspects of the FADEC system and application software development life cycle is expected. The candidate is also expected to provide technical and analytical expertise on the powerplant FADEC systems and have the ability to propose solutions to a variety of technical problems and provide recommendations on technical issues concerning powerplant FADEC sub-system functional implementation.

Interfacing with customers, suppliers, application users and other technical and support personnel will also be required. The candidate must be able to work independently and in collaboration with other team members and project stakeholders on multiple projects simultaneously. Excellent communication and technical skills will be required.

Although the primary role would be in powerplant FADEC systems engineering, opportunities for professional growth in other areas like other aircraft systems development, software development & verification, airborne electronic hardware development & verification, and design assurance may arise.

Required Competencies

- Bachelor's degree in a related engineering or computer science disciplines from an accredited institute
- Experience in developing powerplant FADEC system
- Detailed knowledge of applicable powerplant certification guidance material including:
 - 14 CFR Part 33.28, Electrical and Electronic Engine Control System
 - AC 33.28-1, Compliance Criteria for 14 CFR 33.28, Aircraft Engines, Electrical and Electronic Engine Control Systems
 - ASTM F3338, Standard Specification for Design of Electric Propulsion Units for General Aviation Aircraft
- Detailed knowledge of Guidelines for Development of Civil Aircraft and Systems (SAE ARP 4754A)
- Experience in systems and software engineering techniques, design methodologies and software development practices (e.g. Waterfall, Agile)
- Development of & working experience with Software and Hardware -In-The-Loop verification environments (e.g. dSPACE, Opal-RT, Labview)
- Excellent Communication Skills
- Ability to report work status concisely and accurately to Senior Management & the Customer as requested
- Dynamic Leader and Self-Motivated Team Member

Other Desired Competencies

- Knowledge of other pertinent aircraft system certification guidance material including:
 - 14 CFR Part 23, Airworthiness Standards: Normal, Utility, Acrobatic, And Commuter Category Airplanes
 - 14 CFR Part 25, Airworthiness Standards: Transport Category Airplanes
 - 14 CFR Part 33.75, Safety Analysis
 - Guidelines And Methods For Conducting The Safety Assessment Process On Civil Airborne Systems And Equipment (SAE ARP 4761)
 - Software Considerations in Airborne Systems and Equipment Certification, or other safety-critical software life cycle process (RTCA/DO-178C)
 - Design Assurance Guidance for Airborne Electronic Hardware (RTCA/DO-254)
 - Environmental Conditions and Test Procedures for Airborne Equipment (RTCA/DO-160G)
- Knowledge of powerplant and aircraft system simulation for the purpose of powerplant control law design
- Experience with programming languages (eg. C, C++, Assembly, Ada, C#, Microsoft .Net/WPF)
- Knowledge of 'scripting' languages and environments typically used for test script development (e.g. Python, XML, Google C++ Testing Framework)
- Ability to read and understand electronic hardware wiring diagrams
- Knowledge of Model-Based Development Methods & Tools like BEACON, UML, Rhapsody (IBM), Simulink, SCADE
- Knowledge of Communication Protocols (Ethernet/AFDX, ARINC 429, RS 422, CANbus and USB 2.0)
- Knowledge of other aircraft systems interfacing with the powerplant FADEC like powerplant external sensors, power distribution systems, battery management unit, and avionic displays

Miscellaneous Requirements

- Ability to communicate effectively in English and French (oral and written)
- Occasional travel required to customer sites (usually within North America)
- Possibility of assignment to customer site within the Montreal area
- Must be eligible to work in Canada
- Must be a Canadian citizen or permanent resident

At MANNARINO, we believe that passion and a desire to learn is crucial. Diversity of thought and experiences leads to innovative solutions and creativity. This is why we would like to encourage all those interested to apply.

Please submit your application by

E-mail: rh@mss.ca

*We are an equal opportunity employer.
All applicants will be held in strictest confidence.
Only those selected for interview will be contacted.*
