Job Specification

Systems Modelling and Simulation Engineer

Responsible to: Principal Engineer

Grade: Senior

Salary: To be agreed

Hours of work: 37 hours per week

Work location: Oakley, Bedford

Role Purpose:

Aerospace system and subsystem model requirements analysis, definition and architecting; model development and integration, and verification and validation using MATLAB, Simulink and related tools; the auto-coding of Simulink models to C/C++; assessment of third-party work; and the development and maintenance of standard processes within the programme framework. Some element of customer facing will be required.

Key Responsibilities:

- Work collaboratively as an integral part of a small team delivering a customer focused task-based modelling and simulation support service.
- Investigate, understand and resolve problems with:
  - Simulink model development
  - Model integration into e.g. system-of-systems models and distributed simulations.
- Analyse results from model integration and simulation development to provide understanding of the component models performance and their interactions.
- Develop Simulink models of aircraft and aerospace systems and auto-code to C/C++ and dll.
- Integrate Models (Simulink and dll) into System-of-Systems models.
- Undertake simulation development, testing and application with results analysis to provide understanding of component models and their interactions.
- Develop and test models for integration into Distributed Simulations.
- Extend the Distributed Simulation capabilities and functionality.
- Sanity checking model performance and simulation results through cross-checking with other sources of information and engineering estimates.
- Dealing with aerospace vehicle and system models including:
  - Flight performance.
  - multiple degree-of-freedom (3+) equations of motion.
  - transformations between multiple frames of reference using Euler angle and quaternions.

- o Flat-earth, spherical earth and WGS-84 coordinate systems.
- o Radar range equation.
- o Solving optimisation problems.

- Validation and Verification of model performance and simulation results against requirements.
- Review documentation for accurate technical content and quality to ensure it meets the required high standards.
- Investigate modelling and simulation tools to support new customer requirements.
- Suggest alternatives and recommend new approaches or tools to support continuous process improvement in task delivery.
- Generate documentation (User Guides, Interface Control Documents, Delivery Notes, Verification and Validation reports) for models, simulations and applications developed by the team at an appropriate level for the expected end user's technical ability.
- Report on technical issues encountered with 3rd party provided models and simulations covering the issues, significance and potential resolutions.

Other Duties and Responsibilities
- To actively participate in Blue Bear's Performance Management Scheme.
- To undertake such other duties and responsibilities as may be reasonably required within the grade and level of the post.
- You will be expected to perform different tasks as necessitated by your evolving role within the company and the overall business objectives of the company. Some travel within the UK and internationally may be required.

Equality and Diversity
We are committed to the promotion of equality of opportunity in all of our activities and to encouraging access to our organisation from all groups irrespective of the equality strands. We are working to create an environment in which cultural diversity and individual difference are positively valued in an atmosphere free from harassment and discrimination. We take our legal and moral obligations with respect to equal opportunities seriously and welcome dialogue with individuals on ways in which our equal opportunities policies and practice can be enhanced.

Health and Safety

The organisation together with the assistance of all employees are fully committed to developing a positive safety culture.

We encourage and support employees becoming involved in and participating in health, safety and welfare matters. Our goal is to motivate and empower all employees to work safely and protect their long-term health, not simply to avoid accidents.

PERSON SPECIFICATION

Education/Qualifications	S/L	I	A
Essential:			
• Batchelor's degree in Aerospace engineering (or similar)	X		
Desirable:			
• Higher degree (e.g. Masters/PhD) in Aerospace engineering (or similar)	X		
Knowledge and Experience			
Essential:			
• Aerospace Systems Modelling experience	X		

• Systems engineering lifecycle including:
    o Systems design and requirements capture
    o Testing, verification and validation
	X		

• MATLAB, Simulink and Stateflow	X		
• C++	X		
• Process development and documentation	X		
Desirable:			
• Strong practical Simulink experience		X	
• Matlab Coder, Simulink Coder		X	
• Software Configuration Management, Git, SVN		X	
• SIMDIS 3-D Analysis and Display Toolset		X	
• Distributed Simulation Experience (DIS, HLA)		X	
• GUI development		X	
• Military avionics and sensors		X	
• Other programming languages (C / Python / Java)		X	
Personal/Behavioural Attributes			
Essential:	S/L	I	A
• Cooperative teamwork		X	
• Confident and articulate with good communication skills		X	
• Prepared to travel within the UK and internationally		X	
Other Requirements			
Subject to security vetting to a minimum SC level and should be prepared to undertake DV clearance	X		

S/L = Short Listing   I= Interview   A=Assessment