Job Specification

Robotics Software Engineer

Responsible to: **Head of Software Engineering**

Grade of post: Senior/Principal (depending on experience)

Salary: To be agreed

Hours of work: 37 hours per week

Work location: Oakley, Bedford, Hybrid working available.

Role Purpose:

BlueBear a Saab Company is a leading autonomy and unmanned systems company recently acquired by Saab. We are continuously innovating within the core area of Unmanned Aerial Systems (UAS) including autopilots, mission systems and payload integration. We are searching for engineers to assist in the development and delivery of the next generation of our swarming UAV technology, where swarms of UAVs can perform complex collaborative tasking with minimal human input at range in a safe manner.

You will be required to support a mixture of R&D and productization activities and should be keen to get involved in all development areas including ConOps/Use case development with the customer, requirements and architecture, development and test, and will therefore have a good track history / proven track record in both problem solving and high quality software development.

Your role as a Software Engineer will involve architecting, designing, implementing, and testing embedded and applications that run on our avionics platforms. This may include improving existing software, developing new systems and features as well as exploring state of the art methods for autonomy, swarming and assurance using our in-house fleet of UAVs.

Working as part of a team in a multidisciplinary environment you will have good communication skills. A can-do attitude and a genuine passion for innovative technology will be advantageous. The opportunity will enable the successful candidate to gain knowledge of cutting-edge autonomous systems.

Key Responsibilities
- Primarily, your role will be to architect, design, implement and test mission-critical applications and software for our existing and new products, written in C++
- Ensure software redundancy, real-time, safety and security objectives are met
- Proactively engage with other engineers, teams and leadership to ensure needs are understood and met.
- Help selecting appropriate algorithms, tools and techniques to meet our objectives.
- Get involved in simulation testing, and flight testing at our own field as well as customer demonstrations.

Essential skills:
- Strong Software engineering experience with one or more modern Object-Oriented Languages ideally C++ to build modular, testable code
- Experience in developing and operating complex robotic applications or other cyber-physical systems such as self-driving automotive systems, defence or biomedical devices.
- Good working knowledge of Linux and/or real time operating systems such as FreeRTOS but both development and deployment.
- Good understanding of development tool chains for debugging and problem solving using e.g. gdb.
- Looks to work collaboratively rather than in isolation.

Other useful skills for this role:
- Experience of UAV design, development, operation, including appropriate sensors or systems such as MavLink or ArduPilot highly desirable
- Good knowledge of data structures and algorithms
- Knowledge and experience working with autonomous systems
- Ability to gain, or existing SC Clearance highly desirable
- Experience with quality standards for software (e.g. DO-178, MISRA etc).
- Architecting and implementing SOA systems
- Knowledge and experience of implementing distributed systems utilising technologies such as MQTT or DDS
- Strong architecture and design skills, perhaps using SysML or similar
- Able to use (and ideally create/maintain) CI/CD pipelines using Jenkins, TeamCity or similar
- Knowledge of IP networks using tools such as nftables
- Experience working with electronics and physical systems
- Testing (Unit, Integration) and Test automation experience.
- Experience as a Technical or Team leader
- Experience mentoring junior engineers.
- Good communication skills for internal and external technical discussions.

Other Duties and Responsibilities
- To undertake such other duties and responsibilities as may be reasonably required within the grade and level of the post.
- To actively participate in Blue Bear's Performance Management Scheme.
- 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 (primarily UK based) may be required to support customer trials.

What's in it for you
- Work in a small (but growing!), friendly company with the ability to influence and develop the cutting edge of swarm autonomy technology
- See your work in action flying on our own fleet of custom-built UAVs
- Hybrid working (typically 2 days / week in office)
- Employee Assistance Programme
- Life Insurance and Income Protection Insurance
- Health and Dental Insurance
- Competitive Salary
- Health Cash Plan
- Bike to Work scheme
- Company paid socials (approx. 3 a year)

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
Desirable:			
• Degree in Software Engineering or SMET discipline (e.g. Maths or Physics) with a demonstrable aptitude for Software Engineering	**X**		
Knowledge and Experience			
Essential:			
• Software Engineering in C++ (2011 or later) or similar	**X**	**X**	**X**
• Robotics Systems, Autonomy or other similar experience		**X**	
• Configuration Management (e.g. git)	**X**	**X**	
• Software development lifecycle – including unit and integration testing		**X**	
• Linux for development and deployment		**X**	
Desirable		**X**	
• Software Engineering to standards such as DO178-C or MISRA		**X**	
• Experienced in Software Architecture and Design		**X**	
• Any experience with any of the following: MQTT, SysML, Protobuff, Conan, CMake, MatLab/Simulink, Java		**X**	
• UAV System Design, Development or operation		**X**	
• Use or implementation of CI/CD tools such as Jenkins or TeamCity		**X**	
• Deep IP networking knowledge		**X**	
• Experience of complex Virtualization (Vbox, VMWare), ideally using Ansible or similar		**X**	
• Team, Technical leading or mentoring experience		**X**	
Personal/Behavioral Attributes			
• Creative and innovative thinker and planner		**X**	
• Excellent problem-solving skills		**X**	
• Team player and possible leader		**X**	
• Good analytical and communication skills		**X**	
• Passion for innovation		**X**	
• Excellent writing and speaking skills		**X**	
Other Requirements			
Subject to security vetting to a minimum BPSS level (further security vetting based on position)	**X**		

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