

Senior Software Engineer – Instrument Control & API Architecture

Job Offer

The Company

3Brain is a Swiss deep tech company working on cell-electronic interfaces that link biological networks to computers via custom-made semiconductor microchips. Our mission is to empower life scientists to probe intelligent networks, accelerate biomedical discoveries for the benefit of patients, and create a future more exciting than the present. Our interdisciplinary team of scientists and engineers are constantly pushing the boundaries of engineering for life's complexities. We are ambitious, fast-growing and love to explore. The company's cutting-edge products are used in laboratories and pharma companies worldwide. 3Brain is headquartered in Switzerland nearby Zurich, has a Discovery Unit and production site in Genova, Italy, and an operational unit in the US.

More info: <http://www.3brain.com/about.html>.

Job description

3Brain is looking for a full-time Senior Software Engineer – Instrument Control & API Architecture for its Italian office having experience in .NET projects. The successful candidate will contribute to the development of software solutions for the control, automation and integration of advanced scientific instruments.

This is a senior-level, hands-on engineering position requiring strong experience in software development, on-site presence, system integration and laboratory automation. The role also includes the design and development of software interfaces and APIs that allow internal and external users to interact with 3Brain technologies in a reliable, documented and scalable way. Main responsibilities:

- Design, develop and maintain software for the control, coordination and monitoring of scientific instruments and automated equipment.
- Develop robust software interfaces for hardware devices, instruments and third-party systems using communication interfaces such as TCP/IP, USB, serial protocols, vendor SDKs or APIs.



- Develop robust software architectures for process automation, including sequencing, error handling, logging, diagnostics and recovery procedures.
- Design and implement well-structured APIs and software libraries enabling internal teams and external laboratories to integrate with 3Brain systems.
- Contribute to low-level and performance-critical software components, including device drivers, hardware abstraction layers, data acquisition modules and integration libraries.
- Design and implement multithreaded and concurrent software components, with attention to timing, synchronisation, latency, resource management and system stability.
- Collaborate with internal engineering, scientific and software teams to define requirements and translate them into reliable technical solutions.
- Implement interfaces between instrument-control software, automation systems, databases and internal web-based applications.
- Ensure that software solutions are reliable, maintainable, scalable and suitable for use in production environments.
- Troubleshoot software, hardware-interface and system-integration issues.
- Prepare and maintain technical documentation, including API documentation, software specifications, interface descriptions, test protocols and validation records.
- Contribute to testing, verification and continuous improvement of software modules and APIs.
- Support the definition of best practices for software architecture, code quality, version control and deployment.

Required Qualifications

- Bachelor's or Master's degree in Computer Science, Software Engineering, Electrical Engineering, Automation Engineering, Robotics, Mechatronics or a related technical field.
- At least 5 years of professional experience in software development for scientific instruments, hardware-control systems, automation platforms, industrial systems, robotics, data acquisition systems or similar technical environments.
- Strong hands-on experience with C# / .NET.
- Strong hands-on experience with C and/or C++, preferably in the context of hardware interfaces, drivers, SDKs, data acquisition, performance-critical software or system-level programming.
- Experience designing and implementing APIs, SDKs or software libraries intended for use by other developers or external users.



- Solid understanding of software architecture, object-oriented design, modular programming and maintainable code practices.
- Strong knowledge of multithreading, concurrency, synchronisation, memory management and operating-system-level concepts relevant to time-sensitive software.
- Experience integrating and controlling hardware devices, instruments or machines through standard communication interfaces or vendor-provided software libraries.
- Experience with databases and structured data exchange between software systems.
- Familiarity with source-code management tools, preferably Git.
- Strong troubleshooting skills and ability to analyse complex software/hardware interaction problems.
- Ability to work independently while collaborating effectively with interdisciplinary teams.
- Good technical documentation skills, including the ability to write clear API and interface documentation.
- Excellent English language skills.
- Applicant must have an EU residence permit.

Additional Qualifications

- Experience with industrial automation, laboratory automation or robotics equipment integration.
- Experience with TCP/IP, USB, serial communication, REST APIs, SDK-based integrations or similar technologies.
- Experience with real-time, near-real-time or low-latency software systems.
- Experience with Windows-based applications, Windows services or background processing applications.
- Experience with SQL databases.
- Experience with ASP.NET or web-based software platforms.
- Experience with Agile development methods and backlog management tools, such as JIRA.
- Knowledge of software testing, validation and documentation in regulated or quality-sensitive environments.

What We Offer

- A dynamic and stimulating work environment driven by a desire to build transformational technologies to help others.



- A young, fast-growing company with plenty of opportunities for personal growth and development.
- The opportunity to work on technically challenging software involving advanced life-science technologies.
- Working place: **Genova, Italy**. It is a wonderful Mediterranean city with and incredible history, located at the heart of nearby world-renowned places Cinque Terre or Milan, the fashion and business hub of Italy.

To apply send your CV and short motivation letter to hr@3brain.com, subject: [Senior Software Engineer – Instrument Control & API Architecture](#).

