Software Engineer

Blacksburg, Virginia | Full-Time

About Sentek Instrument

Sentek Instrument LLC is a high-tech company developing and manufacturing advanced optical sensor systems and instrumentation for demanding applications in energy, aerospace, chemical processing, and other fast-growing markets. Located in the Virginia Tech Corporate Research Center in Blacksburg, Virginia, we combine research, engineering, and hands-on product development to address challenging measurement problems that are not well served by conventional products.

The Opportunity

We are seeking a talented and highly motivated Software Engineer to join our engineering team. This is a hands-on role for someone who enjoys working at the intersection of software, electronics, sensors, and measurement instrumentation. You will help develop and improve the software that operates our instruments, communicates with hardware, processes measurement data, and provides customers with useful and reliable tools.

The ideal candidate is a strong programmer who can work comfortably with existing code while also developing new software. You should be curious about how hardware works, willing to learn unfamiliar technologies, and able to troubleshoot problems that cross the boundary between software and electronics.

Key Responsibilities

- Develop, maintain, and improve software and graphical user interfaces (GUIs) for existing products.
- Develop software for new sensor systems and instrumentation.
- Develop software interfaces that communicate with sensors, data-acquisition electronics, and other instruments.
- Design and implement APIs that allow other software to control instruments, configure settings, and retrieve measurement data.
- Develop data acquisition, processing, visualization, and storage functions.
- Support sensor calibration, laboratory testing, troubleshooting, and product verification.
- Develop and implement signal-processing algorithms as needed for sensor and instrument applications.
- Work with embedded systems and microcontrollers and support integration between embedded firmware and PC software.
- Diagnose and resolve software and hardware-related problems using systematic debugging and testing.
- Maintain clear, well-documented code and create internal and customer-facing software documentation.
- Participate in research and development of new products and technologies.

Required Qualifications

- Bachelor’s degree in computer science, computer engineering, electrical engineering, or a related field.
- Strong programming ability in C++, C#, and/or C.
- Experience developing software that interfaces with hardware, sensors, instruments, or embedded systems.
- Experience with Windows application development and GUI programming, or the ability to learn these quickly.
- Familiarity with microcontroller programming, or a strong willingness to learn.
- Experience with hardware communication interfaces such as Ethernet, serial communications, USB, or similar technologies.

- Ability to work with data acquisition, data processing, visualization, and data storage.
- Basic understanding of digital signal processing and measurement systems.
- Strong debugging and problem-solving skills, including troubleshooting across software and hardware boundaries.
- Experience with Git or another version-control system.
- Ability to understand, maintain, and improve an existing codebase while also developing new software.
- Ability to learn unfamiliar hardware, software, and engineering concepts quickly.
- Ability to create clear technical documentation for both internal and external users.

Preferred Qualifications

- Experience developing software for scientific, industrial, instrumentation, or test-and-measurement applications.
- Experience developing and implementing signal-processing algorithms.
- Experience with embedded C/C++ and microcontrollers.
- Familiarity with FPGA-based systems and the ability to understand FPGA designs and code at a high level.
- FPGA development experience using Verilog, SystemVerilog, or VHDL.
- Experience with high-speed data acquisition, real-time processing, or large datasets.
- Familiarity with HDF5 or similar scientific data formats.
- Experience with industrial or embedded communication protocols such as Modbus or CAN.

What We Offer

- Competitive compensation package.
- 401(k) matching and retirement plan.
- Paid time off (PTO) and health benefits.
- Opportunity to work on unique, technically challenging products with real-world applications.
- Professional growth in a fast-paced, research-driven engineering environment.
- Opportunity to work closely with engineers and scientists across software, electronics, optics, and sensor technology.

Location

Blacksburg, Virginia — a vibrant college town with a high quality of life, excellent schools, and abundant outdoor recreation. Sentek Instrument is located within the Virginia Tech Corporate Research Center, providing a strong technology and research environment.

Equal Opportunity Employer

Sentek Instrument LLC is an equal opportunity employer committed to providing a professional and inclusive workplace. We value individuals with diverse backgrounds, experiences, and perspectives.

How to Apply

Please send your resume and a brief cover letter to hr@sentekinstrument.com. Please include “Software Engineer” in the subject line. We look forward to learning more about you and how you could contribute to Sentek Instrument.