

# Senior Software Developer - Liquid Rocket Engine

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## Description

SFU Rocketry is seeking Senior Software Developers to join our Software/Firmware Subteam for our Liquid Rocket Engine (LRE) project. On this team, you will work with the existing software framework for our liquid rocket engine test stand - maintaining and upgrading the existing code for use with our version two and onwards engines. You will also be working with various subsystem teams in integrating their creations into our current test stand software. You will be at the forefront of the technology being developed by SFU Rocketry, upgrading our framework to work with more sensors, data acquisition and controlled actuation of turbopumps, regenerative cooling, and eventually flight-capable rockets.

## Duties & Responsibilities

- Work with existing test stand software framework to develop and maintain safety-critical systems in C++ and Bash
- Implement performance, robustness, control and safety upgrades
- Work with multiple teams, both software, hardware and mechanical in planning, requirements, and integration of various engine related subsystems
- Assist in running tests in-lab and in-field for the liquid rocket engine for all the subteams working on it
- Work towards moving our current system to RTLinux, a hard real-time variant of Linux
- Perform in role as test stand control operator during our wet dress and hot fires
  - You get to push the metaphorical “Big Red Button”
- Get to work on something big, loud and dangerous!
- Contribute with a minimum of 5 hours of work and 1 hour of meetings per week

## Key Qualifications

- Firmware and embedded systems
  - Arduino, Raspberry Pi, other microcontrollers and sensors
- Low level C or C++
- Serial communication protocols (SPI, I<sup>2</sup>C, UART, etc)
- Linux and basic Linux automation
  - Bash is an asset
- Networking knowledge (TCP/IP)
- Low level operating systems knowledge
  - Interrupts, processor priority, multithreading, shared memory, IPC
  - RTOS knowledge is an asset
- Simple electronics hardware knowledge (breadboarding, voltage and current concepts)
- Must be able to work independently and within teams
- Strong self-learning ability
- Creativity, ability to think outside the box, is a strong asset
- Thorough attention to detail
- Self-starter, inspired to initiate action
- Professional communication skills, verbal and written

# Education & Experience

- Students pursuing a Computing Science, Software Systems, Computer Engineering, or equivalent undergraduate or graduate degree at Simon Fraser University (preferred)
- Preference for third year if in undergraduate studies
- Faculty or staff members of Simon Fraser University are welcome to apply
- Preference for this role given to those with related experience in key qualifications, though all levels of experience are encouraged to apply

# Job Details

- Part-Time / Casual
- Volunteer Student Design Team Position
- Hybrid - Surrey SFU Engineering Building
- Commitment for a minimum of 9 months after onboarding
- Frequent promotion opportunities to Lead positions

# Statement from SFU Rocketry

SFU Rocketry is an inclusive and equal opportunity organization. We welcome, include, and respect all regardless of race, colour, ancestry, place of origin, religion, family status, marital status, physical disability, mental disability, sex, age, sexual orientation, gender identity or expression, political belief, or conviction of a criminal or summary conviction offence unrelated to employment.

SFU Rocketry is Simon Fraser University's largest active design team in the university's history, and has a strong reputation to uphold. Our members are highly sought-after and have been actively recruited for permanent and co-op intern industry positions. We operate as a professional organization, where professional conduct is required and expected from all SFU Rocketry members at all times.

# Learn More about SFU Rocketry

Visit our website - <https://www.sfurocketry.com>