

Senior Hardware Designer - Liquid Rocket Engine

Description

SFU Rocketry is seeking a Senior Hardware Designer to join our Liquid Rocket Engine (LRE) team. This team is responsible for developing the main electrical control and feedback systems involved in SFU Rocketry's primary project. You will be at the forefront of the technology being developed by SFU Rocketry! LRE is currently upgrading our main control system with new hardware, improving data acquisition and controlled actuation of solenoids and turbopumps, regenerative cooling, and eventually producing hardware for flight-capable rockets. This role is primarily a PCB designer role, and is an excellent way to sharpen your electrical design skills that are not taught in academics.

Duties & Responsibilities

- Determining requirements and specifications for new LRE subsystem
- Architecture of the main LRE systems
 - Assisting with LRE subsystems
- Schematic capture, PCB layout, PCB assembly
- Contributing to hardware design reviews
- Testing and validation of hardware systems
- Integration of validated hardware into main LRE systems
- Implementing design changes and improvements to existing hardware
- Contribute with a minimum of 5 hours of work and 1 hours of meetings per week

Key Qualifications

- Strong electrical circuit and microelectronics knowledge (ENSC 320+325 suggested)
- Strong experience in Altium Schematic and PCB Design Software
- LTspice experience
- Basic understanding of signal integrity (SI) and PCB concepts (impedance matching, reflection avoidance, ground loop prevention, shielding, layer stackups, etc)
- Understanding of PCB manufacturing and assembly processes is a strong asset
- Serial communication protocols (SPI, I²C, UART, etc) is an asset
- Basic embedded systems knowledge (Processor architecture, Raspberry Pi, Arduino, etc)
- 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 an Electronics Engineering, Electrical & Computer Engineering, Mechatronics Engineering, or equivalent undergraduate or graduate degree at Simon Fraser University (preferred)
- Preference for third/fourth 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
- Promotion opportunities for Director and Executive 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>