

# Open Post-Doctoral Research Positions on *Development of Silicon Micromechanical Resonators* Simon Fraser University, British Columbia, Canada

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**Introduction:** We have openings for two post-doctoral researchers at the Intelligent Sensing Laboratory (ISL: <http://sense.fas.sfu.ca/>) at Simon Fraser University, BC, Canada. We are a diverse and vibrant research team with members from different technical and cultural backgrounds that work together to find solutions for challenging problems and make exciting discoveries along the way. Our research focuses on developing advanced materials, micro- and nano-devices, sensor systems, and signal processing for sensors. Benefiting from access to two cleanrooms on SFU campus and our world-class device characterization facilities, our team has significant experience in the design and fabrication of microdevices and their characterization. We have a proven track record of innovation in the field with numerous *firsts* to our collective efforts.

**Project:** The successful applicants will primarily work with the team members to develop the next-generation silicon resonators for timing applications. The work will be conducted in close collaborations with our industrial partner that aims to commercialize the research results. The team members will collaborate on (i) Developing material and device models; (ii) Establishing a microfabrication process as per project requirements; (iii) Design, modelling, and characterization of the silicon test structures and microdevices; (iv) Establishing device characterization protocols; (v) Development of interface electronics; (vi) Documentation and dissemination of the results; and (vii) Interactions with our industrial partner.

**Responsibilities:** We seek motivated individuals to join our team of researchers and engineers who collaborate on different aspects of this project. The candidates need to be hands-on experimentalists with solid theoretical backgrounds. The post-doctoral researchers are expected to have the experience to rapidly develop and establish fabrication and characterization protocols in collaboration with the R&D team of our industrial partner. As senior team members, the post-doctoral researchers are expected to contribute to training and mentoring of the junior team members, documentation of the results, and project administration through preparing progress reports and coordinating the efforts of the team members towards the project milestones.

**What we offer:** The successful applicant will work within a vibrant research team and is exposed to several other projects, providing numerous opportunities for learning and contributions at different levels. Our past team members have moved on to academic and industrial positions at leading Canadian and international institutions. The salary is competitive and based on the relevant experience of the applicants.

**How to apply:** The desired start date for the position is Spring 2022. Interested individuals should forward a complete CV, including the relevant expertise, list of publications, and names of three references, to Dr Behraad Bahreyni ([bba19@sfu.ca](mailto:bba19@sfu.ca)). We expressly encourage members of underrepresented groups in science and engineering to apply to these positions. The initial appointment for these positions is for one year. Employment beyond the first year will be subject to satisfactory performance and availability of funds. Review of the applications will start immediately and will continue until the position is filled.

**Required qualifications:**

- 1) PhD in Applied Physics or Electrical, Material, or Mechanical Engineering, or a related field;
- 2) First-hand experience in the design and characterization of silicon microdevices;
- 3) Excellent oral and written communication skills;
- 4) Be a detail-oriented problem-solver and intellectually motivated;
- 5) Open and adaptable mindset for respectful engagement with team members with diverse technical, professional, and cultural backgrounds;
- 6) And at least one of the following:
  - a) Experience and ability to develop, characterize, and troubleshoot microfabrication processes;
  - b) Experience in the design and implementation of interface electronics and printed circuit boards for silicon microdevices.

**Desired qualifications:**

- 1) Experience with developing electrostatic microdevices, especially microresonators;
- 2) Experience in developing multi-scale physical and numerical models of material responses;
- 3) Development of test structures for material and device performance evaluation;
- 4) Hands-on experience with wafer-bonding and deep reactive ion etching processes.

**Additional information:**

- Intelligent Sensing Laboratory: <https://sense.fas.sfu.ca/>
- Post-doctoral appointments at SFU: <https://www.sfu.ca/gradstudies/postdocs.html>
- Equity, Diversity, and Inclusion at SFU: <https://www.sfu.ca/edi.html>