



**DRDC**  
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# ENGINEER OR DEFENCE SCIENTIST JOB OPPORTUNITIES

## Defence Research and Development Canada (DRDC)

### Electro Optical Surveillance and Reconnaissance

**POSITION TITLES:** Engineer (EN) and Defence scientist (DS)

**WORK LOCATION:** Valcartier Research Centre, 2459 de la Bravoure Road, Québec, Quebec

**LANGUAGE PROFILE:** Bilingual imperative (BBB/BBB). The employee must be able to communicate in English and French. A Second Language Evaluation will be required.

#### **WORK ENVIRONMENT:**

Defence Research and Development Canada (DRDC) is Canada's science, technology and innovation leader, trusted advisor, collaborative partner, and knowledge integrator for defence and security. We develop and deliver new technical solutions and advice to the Department of National Defence, the Canadian Armed Forces, other federal departments, and the safety and security community. We also work with partners in academia, government and industry and with Canada's allies.

The Valcartier Research Centre offers expertise in the areas of information, optronics and weapon systems, and boasts a unique capability in the development of new technologies that emphasizes testing under realistic conditions.

#### **JOB DESCRIPTION:**

Are you interested in planning, organizing, managing and executing research tasks and projects? At the Valcartier Research Centre, we work in the areas of quantum physics, digital vision, autonomous systems (robots and drones), optical communication and more. In this position, you will have to design and conduct experiments, analyze results, and deliver written and oral reports. You may also be required to develop software, collect field data and travel. You will also need to oversee research being done by universities or the industry.

## EDUCATION:

A degree from a recognized post secondary institution in mechanical engineering, civil engineering, electrical engineering, aeronautical engineering, geological engineering, naval architecture or in another area of engineering relevant to the position; or

A master's degree from a recognized post secondary institution with a specialization in engineering, chemistry, physics, biology, economics, sociology or in another area relevant to the position; or

A bachelor's degree from a recognized post secondary institution with a specialization in an area relevant to the position combined with acceptable experience; or

A doctorate from a recognized post secondary institution with a specialization in engineering, chemistry, physics, biology, economics, sociology or in another area relevant to the position.

## THE IDEAL CANDIDATE MUST\*:

- Have knowledge of **augmented vision and imagery**;
  - Be able to interpret, analyze and use electro optical images and data to detect, identify and characterize targets;
  - Have knowledge of systems design, calibration, characterization, operation and modification of augmented vision tools and their hardware sub components;

and/or

- Have knowledge of **quantum physics and optics**;
  - Be able to generate, characterize and detect single and entangled photons;
  - Be able to design experiments and process quantum information (for example, manipulating or characterizing qubits, creating and measuring squeezed states, and quantum communication);

and/or

- Have knowledge of **optical communication**;
  - Be able to shape a laser beam, spread a laser beam in the open air or couple laser beams into a fibre, modulation protocols and encode information on optical signals;
  - Have experience designing, aligning, characterizing, operating and modifying optical systems or electro optical fibres and in open space;

and/or

- Have knowledge in the field of **mechatronics**;
  - Be able to develop and design autonomous (unmanned vehicle), land and/or drone systems;
  - Be able to develop software for autonomous systems: on board controls, navigation, sensors and perception, communication, autonomy, robot/user interface;

and

- Have knowledge of signal and image processing and in developing data analysis algorithms (relevant languages: Python, C#/C++, Matlab);
- Have knowledge in designing and characterizing experimental set ups;
- Be able to keep up to date on new trends in science and technology in areas of interest;

## **PERSONALITY PROFILE AND PERSONAL SUITABILITY BEING SOUGHT\*\*:**

- Ability to work effectively in a team;
- Ability to communicate orally and in writing;
- Ability to adapt;
- Ability to be creative and innovative;
- Ability to solve concrete problems.

## **RATE OF PAY:**

\$59,158 to \$108,127

For more information on the conditions of employment, please visit the following links:

[https://www.tbs.sct.canada.ca/agreements\\_conventions/view\\_visualiser\\_eng.aspx?id=16](https://www.tbs.sct.canada.ca/agreements_conventions/view_visualiser_eng.aspx?id=16)

[https://www.tbs.sct.canada.ca/agreements\\_conventions/view\\_visualiser\\_eng.aspx?id=18](https://www.tbs.sct.canada.ca/agreements_conventions/view_visualiser_eng.aspx?id=18)

## **HOW TO APPLY:**

To apply, please email your résumé and a cover letter demonstrating, with concrete examples, how you meet the above criteria of an ideal candidate (\*) and the personality profile and personal suitability being sought (\*\*) no later than January 15, 2024, to:

Jody Ainsley

Administrative Officer

Electro Optical Surveillance and Reconnaissance (EOSR)

DRDC – Valcartier Research Centre

**Email: [RDDCvalSREO@forces.gc.ca](mailto:RDDCvalSREO@forces.gc.ca)**