

## Job Description

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<b>Job Title:</b>	Program Director
<b>Department:</b>	Institute for Quantum Computing
<b>Reports To:</b>	Managing Director
<b>Jobs Reporting:</b>	None
<b>Salary Grade:</b>	USG 11
<b>Effective Date:</b>	October 1, 2017

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### **Primary Purpose**

Reporting to the Managing Director, this position is primarily responsible for leadership of the Canadian Space Agency funded QEYSSat Program at the Institute for Quantum Computing. The federal government has announced that the QEYSSat team at the Institute for Quantum Computing will be the project lead for the multi-million dollar project that involves the Canadian Space Agency, other stakeholders in academia, industry and government. The incumbent is expected to oversee this project with the ultimate objective of developing space and ground technologies for long distance quantum key distribution (QKD) in space. The incumbent will work closely with the Principle Investigator Prof. Thomas Jennewein to lead the project with experience and knowledge of concepts relating to satellite technology.

### **Key Accountabilities**

#### **Project and Strategic Leadership**

- Engage in high level scientific and technical discussions and planning, and provide expertise, leadership and guidance for the project.
- The incumbent will be a lead liaison between the IQC science-team and technology partners including the Canadian Space Agency.
- Responsible to set priorities and provide oversight for the mission project and establish timelines for all internal and industry partner teams, ensuring the project meets time and scientific objectives.
- Initiate proactive actions to ensure these technical and scientific milestones are met.
- Provide leadership regarding program decisions and areas concerning partnerships, contracts, subcontracts, procurement, personnel deployment, schedule management and system design.
- The incumbent is expected to contribute as a senior professional staff member of the Management and Administration team of IQC.

#### **Technical Leadership**

- Establish operational practices that ensure the professional management of the project including communication with all parties involved in the mission.
- Coordinate and work with the IQC science team with project management, planning, analysis, documentation and deliverables for QKD projects.
- Ensure testing and performance meet the scientific specifications required for quantum protocols.
- Ensure quantum satellite stability requirements are met.
- Ensure the overall project, scientific agenda and outcomes, align with mission objectives.
- Develop opportunities for further engagement of stakeholders.

#### **Partnership and Stakeholder Relations**

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- Establish and maintain strong relations with Canadian Space Agency and all partners of the project.
- Work with provincial agencies on the Quantum Ground Satellite Project through the Ontario Research Fund-Research Excellence program.
- Support the development of proposals to CSA, Ontario and other funding agencies for quantum key distribution and other projects defined by the IQC science team.
- Look for new opportunities and initiatives in space and terrestrial quantum communication field.

### **Communication**

- Provide progressive scientific and technical updates to the Canadian Space Agency regarding project milestones.
- Provide context and updates on the progress of the satellite program to all partner groups.
- Work with communications teams at IQC and the University of Waterloo to convey scientific and technical progress and updates.

### **Required Qualifications**

*If hiring today, what would be the required education, experience, knowledge, skills and abilities?*

#### **Education**

- Undergraduate degree in Science or Engineering and preferably a graduate degree in Science or Engineering.

#### **Experience**

- The incumbent would have 7+ years of aerospace industry experience.
- Previous work experience managing satellite missions and flight instruments.
- Experience with project acquisition, team and partnership building, professional proposal development, project management and aerospace systems engineering.
- Demonstrated experience in coordinating a large-scale research project involving various government agencies and other industry partners.
- Demonstrated fiscal responsibility regarding research grants/budgets.

#### **Knowledge/Skills/Abilities**

- Demonstrated knowledge of the aerospace industry and encryption technology.
- Experience with optical modelling, performance analysis and environmental testing.
- The incumbent should have strong experience in grant and proposal writing according to typical standards in the aerospace industry.
- Excellent organizational skills and ability to prioritize and manage multiple and overlapping and deadlines.

### **Nature and Scope**

- **Contacts:** Works closely with the IQC Management and Administration team, the principle investigator, science team, and stakeholders. Interacts with The Canadian Space Agency and the Ontario Research Fund group, as well as other funding agencies. Deals with subcontractors (Neptec, excelitas, INO, Xiphos) and vendors (Digikey, Thorlabs, etc.). Also interacts with test facilities: TRIUMF in Vancouver and DFL in Ottawa.

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- **Level of Responsibility:** This position has specialized work with minimal supervision. This position leads the management of the project, and the contributions from affiliated agencies and groups. The Institute for Quantum Computing has been chosen by the Canadian Space Agency as the scientific lead for this large national project. The expectation is that this role will lead the project with and technical and scientific expertise, leadership and professionalism.
- **Decision-Making Authority:** Accountable for establishing priorities for project objectives and timelines.
- **Physical and Sensory Demands:** Minimal physical demands typical of a position operating within an office environment.
- **Working Environment:** Minimal exposure to disagreeable conditions typical of a senior management position exposed to time demands, complex decisions, dynamic environment associated with senior level responsibilities.