

POSTING NUMBER: PD-xxxxx
POSTING DATE: July 18, 2016
CLOSING DATE: August 15, 2016 by 4:30pm

**Postdoctoral Fellowship or
Doctoral Student Fellowship
(Full-time position)
Mathematics and Statistics**

POSITION SUMMARY:

Rigetti Computing based in Berkley, California through its work with faculty at Dalhousie University's Department of Mathematics and Statistics has provided funding for a scholarship for a PhD student or post doctoral fellow who is involved in developing a quantum computer language.

The successful applicant will work on a project entitled "Trusted Quantum Software via a Formally Verified Functional Quantum Programming Language". Specifically, the project will involve the design of a type system for a type-safe functional programming language for quantum computing, loosely modelled on the Quipper language (<http://www.mathstat.dal.ca/~selinger/quipper/>). It will also involve developing the meta-theory (including categorical semantics) of the language, and eventually the formalization of some of this meta-theory in a proof assistant.

Responsibilities:

- Develop research related to knowledge mobilization/implementation science/knowledge translation relevant to this area of concentration.
- Assist with program evaluations, ethics submissions, and report writing.
- Participate in the analysis of quantitative and qualitative data and dissemination of results in traditional academic forums (conferences, journal articles, books) and through other means as deemed appropriate.
- Assist with grant writing and other aspects of project sustainability

Requirements:

- Familiarity with type theory (especially dependent type theory), programming language design, and/or semantics will be a prerequisite
- Familiarity with quantum computing will be helpful, but is neither necessary nor sufficient for this position - the main emphasis is on programming languages and type systems.
- The ideal candidate will have completed a Doctoral program or be enrolled in one, in a related field of study.
- Candidates will be required to travel.
- Candidates should have a proven track record of research and publication.

Status: The recipient will be a post-doctoral fellow or PhD student in the Department of Mathematics and Statistics, who is involved in the development of a quantum computing language. The recipient will be expected to participate in three-month internships each year on-site at the Rigetti Computing office in Berkeley, California to work on Rigetti projects related to

quantum computing. The recipient should be able to sign an appropriate Non-Disclosure Agreement (NDA) and a three-month internship employment agreement with Rigetti Computing.

Pay Scale: Post Doctoral Fellow Salary of \$60,000/year for up to 2 years

PhD student Scholarship of \$35,000/year for up to 2 years.

Start Date: Review of applications will begin once position is posted and will continue until a suitable candidate is selected. The anticipated start date for this position is September 1, 2016.

Deadline for application: August 15th, 2016 by 4:30pm

Applications will be reviewed as they are received. We thank all applicants, however, only selected candidates will be contacted. Interested parties please forward a covering letter, cv, and a sample of recent writing (article, report or other publication) as well as a list of 2-3 references (with contact information) to:

Queena Crooker-Smith

Administrator

Mathematics and Statistics Department, Dalhousie University

P.O. Box 15000, 6316 Coburg Road

Halifax, NS, Canada B3H 4R2

or email to admin@mathstat.dal.ca