EMERGENCY TA Job Posting: Summer 2022 | Quantum Machine Learning – APS1081H

This job is posted in accordance with the CUPE 3902 Unit 1 Collective Agreement.

Job Posting Date: April 1, 2022
Application Deadline: April 15, 2022

Course Description:

Quantum computation offers a novel substrate on which machine learning and other adaptive systems may be profitably realized. The course provides the student with the foundations of quantum computation (QC), machine learning algorithms, and how machine learning systems — both classical and novel ones — can benefit from QC.

The foundations of classical analog and digital computation will be first covered, including relevant aspects of the theory of operation of classical computers, how such computers are realized in hardware, and how algorithmic performance is achieved. Quantum computation (QC) will be discussed from an operational (engineering) perspective, with an emphasis on how quantum and classical computation differ, and the implications of these differences on (a) theoretical algorithmic performance, (b) novel algorithmic schemes, and (c) other pragmatic facets. As a vehicle towards understanding QC, we will cover general QC algorithms, classical algorithms on QC, as well as adaptive machine learning systems. A brief survey of supervised, unsupervised and reinforcement learning will be provided, with an emphasis on those foundational aspects that stand to benefit from QC. How such schemes may be implemented on QC and the implementation and performance perspectives will be discussed, as well as how such schemes may be modified to exploit QC-specific advantages will be presented.

This course is taught online.

1 positions Available – 15 Hours

Duties: grading of the final test.

Qualifications: strong computer science and programming skills, knowledge of machine learning, reinforcement learning, linear algebra, calculus and probability; some knowledge of quantum computing would be useful

Rate of Pay: Current TA rates: U/G: $47.17/hour; SGS I: $47.17/hour; SGS II: $47.17/hour

Date of Appointment: May – Aug 2022

Notes:
1. TA position and hours posted are tentative, pending final course determination and enrollment.
2. The Vice-Dean of Graduate Studies in the Faculty of Applied Science & Engineering has the sole authority to offer the above TA positions.
3. CUPE 3902 Unit 1 Collective Agreement is available at http://agreements.hrandedequity.utoronto.ca.
To apply for a TA position, please submit your application (cover letter and CV as single PDF file) through this form by April 15, 2022.

If the form does not work, please email David Duong, gradstudies@engineering.utoronto.ca

If during the application and/or selection process you require accommodation due to a disability, please contact David Duong, d.duong@utoronto.ca

The University of Toronto is strongly committed to diversity within its community and especially welcomes applications from racialized persons / persons of colour, women, Indigenous / Aboriginal People of North America, persons with disabilities, LGBTQ persons, and others who may contribute to the further diversification of ideas.

Duties of this position shall be performed at the campus on which the position is located. Where the duties are intended to be performed at another location, such other location will be specified in the posting.

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