Postdoctoral position in deep learning for the analysis of the Large Hadron Collider (LHC) data

We invite applications for a postdoctoral position in deep learning for the analysis of Large Hadron Collider (LHC) data. The successful candidate will join a multidisciplinary team co-headed by Jean-François Arguin (Physics Department, U. de Montréal), Alain Tapp (MILA, U. de Montréal) and Tobias Golling (Physics Department, U de Genève) that is funded by the IVADO institute. It consists in developing and applying machine learning techniques, with a focus on deep learning, to the analysis of the Large Hadron Collider (LHC) data. The LHC is one of the most ambitious experiment ever conducted. It collides protons together near the speed of light to reproduce the conditions of the Universe right after the Big Bang. It is located at CERN (European Organization for Nuclear Research) in Geneva, Switzerland. It possesses all the features of Big Data: 1e16 collisions are produced each year, each producing hundreds of particles and each of these particle leaving a complex signature in the 100 million electronic channels of the ATLAS detector.

Several machine learning projects will be available to the successful candidate, such as the identification of particles (e.g. jets and electrons), detector simulation and/or the search for new physics. This post-doctoral position can be held at the MILA institute or the Department of Physics of the U. de Montréal, depending on the preference of the candidate. Frequent trips to the U. de Genève and CERN in Switzerland will be possible. The postdoc will obtain an official affiliation to CERN and the ATLAS experiment and have access to large, high-quality simulated dataset of LHC data. In addition, it will possible for the postdoc to work a significant fraction of time on machine learning fundamental research of her/his choice, with possibilities of collaborations with members of MILA. The appointment is for two years.

The candidate should hold a PhD in computing science, physics or an equivalent related field, and to have expertise in machine learning. Experience in deep learning is a plus. The candidate is expected to be proficient in machine learning libraries such as Theano, Torch, TensorFlow or Keras.

The candidate should send a CV, a brief description of research experience and interests, a list of publications, and arrange to have two or more letters of recommendation sent to:

Professor Jean-François Arguin (arguin@lps.umontreal.ca)

Applications received by June 15, 2018 will receive full consideration. The position will remain open until filled. All qualified candidates are encouraged to apply; however, in accordance with Canadian Immigration requirements, Canadians and permanent residents will be given priority in case of equal qualification.