PRESENTATION 1:  12:00-12:30

Using machine learning models for early identification and support of learners in difficulty across their educational continuum

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Excellent medical education provides the basis for excellent physicians and exceptional medical care. Identifying opportunities to leverage data on educational processes and achievement through the implementation of Artificial Intelligence (AI) could revolutionize medical training and raise the quality of medical professionals in Canada. Medical education training generates numerical, categorical, and narrative data about the student experience from admission to certification. This vast information is hardly analyzed in its entirety due to the high number of samples, the complexity of interconnecting it and the great time and human resources consuming to process it. If harnessed appropriately and ethically using artificial intelligence, this data can reveal important insights into two key characteristics of education: i) the trajectory of learning as a learner progresses through the major milestones of the education continuum, and ii) the identification of points to support learners in their areas of struggle and to amplify their strengths, providing personalized encouragement toward excellence in education. In this presentation, we will provide insight into the implementation of different preliminary Machine Learning (ML) models using quantitative and qualitative data for two applications: i) the clarification of learner trajectory and prediction medical students’ performance based on medical education curricular and Pre-Clerkship assessment data, and ii) the automatic sentimental analysis of the qualitative data from the Learner Assessment of Clinical Teachers (LACT).

We report the results of our preliminary ML model from Pre-Clerkship data, the accuracy of the refined sentimental analysis, and discuss implications for future work using ML in medical education.

PRESENTATION 2: 12:30-1:00

Building capacity for big data: A consensus on promises, perils, and principles

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Studies using longitudinal medical education data across the continuum of training and practice are not currently the norm. Connecting these metrics and information creates education Big Data that can provide new insights for research and enhance practice. The need for data-driven studies will continue to grow as stakeholders increasingly call for evidence of accountability and impact of medical education. However, the status quo for the governance and oversight of this type of medical education scholarship is fraught with risks. The capacities and models necessary for sensitive and responsive governance need to be developed in the context of medical education and its stakeholders. Moreover, without thoughtful reflection and action on the risks and benefits of data sharing, our field will lag and perhaps foster work that has harmful consequences for learners, institutions, and communities represented by the data. Additional challenges for inter-institutional data sharing include technical and logistical limitations. In this talk, we describe a SSHRC funded Canada-wide stakeholder consensus building exercise leading to principles that should underpin accountable governance of Big Data studies that link institutional data across the continuum. We will discuss our approach, the risks and benefits articulated by participants, the derived governance principles, and enabling recommendations. We also situate the consensus within the wider landscape for data governance such as the Tri-Council data management policy.