



COLLEGE of ENGINEERING
AND PHYSICAL SCIENCES

SCHOOL OF COMPUTER SCIENCE

PhD.CSCI Seminar 1

Friday May 8, 2020 at 11AM on Zoom (Please contact Fei Song to join at fsong@uoguelph.ca)

Improving Natural Language Understanding with Graph Neural Network based Language Modelling

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ABSTRACT:

In this Seminar we present the case for: i) how a Language Model (LM) could be built using a Spatio-Temporal Graph Neural Network (GNN) architecture, and ii) how doing so would form the basis for better language understanding. Specifically, we explore how it is that current state-of-the-art Language Modelling techniques fail to understand the meaning of what is written and we show how incorporating an Ontological Knowledge base could improve understanding. We further demonstrate limitations to previous approaches of incorporating Ontological Knowledge into Natural Language Processing (NLP) systems, and show how switching to graph based representations and a GNN based LM could overcome these limitations. Finally, we explore various elements of popular GNN architectures and illustrate how they could be incorporated into a modern Transformer architecture based LM to build a Spatio-Temporal GNN based LM