Location: Online (Internship from Home)

Task/Title Leveraging Knowledge Graphs for Explainable AI in NLP

In the context of specific domains such as automotive, this internship aims towards addressing the following fundamental research questions:

* 1. Can Knowledge Graphs (KGs) and their underlying semantic technologies address understandability of Deep Learning models? For instance in the case of NLP for specific tasks such as Named Entity Recognition?
  2. Can domain-knowledge be incorporated in deep learning approaches for bringing consistency and robustness in prediction or Classification?
  3. Can ML model outcomes be semantically integrated with the input data and explained using the underlying domain ontology and KG?

# Domain for Illustration – Automotive Domain Software Development

Leveraging the Automotive Function specific Knowledge Graphs, how NLP tasks such as Named Entity Recognition applied on short domain texts such as Requirement statements can be made explainable. This would enable to comply on ISO Standards in offering the right insights for accepting AI interventions in automation of Requirement Review and Analysis.

The internship is expected to result in following deliverables

1. Formal techniques to infuse knowledge graphs to deep neural models
2. Framework to visualize interpretable vector Representations space, Attentions distribution, Relative feature ranking etc.
3. Enabling interpretation of semantic similarity between pairs of sentences such as Requirement statements, providing an understanding of why certain pairs are considered similar or different.

# Internship Request Details:

1. Number of Interns : 2
2. Preferred Educational Qualifications : Final year Masters Students or Early PhD Students
3. Expected Skills : NLP, Knowledge Engineering, Symbolic Reasoning, Graph Theroy, Python, Tensor Flow