

Towards Anticipatory Analytics: Forecasting Instability Across Countries from Dynamic Knowledge Graphs

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Motivation



- ❖ Protests, civil unrest, natural disasters, and instability around the world cause physical damages and human casualties
- ❖ Safeguard citizens and visitors
- ❖ Monitor essential supplies

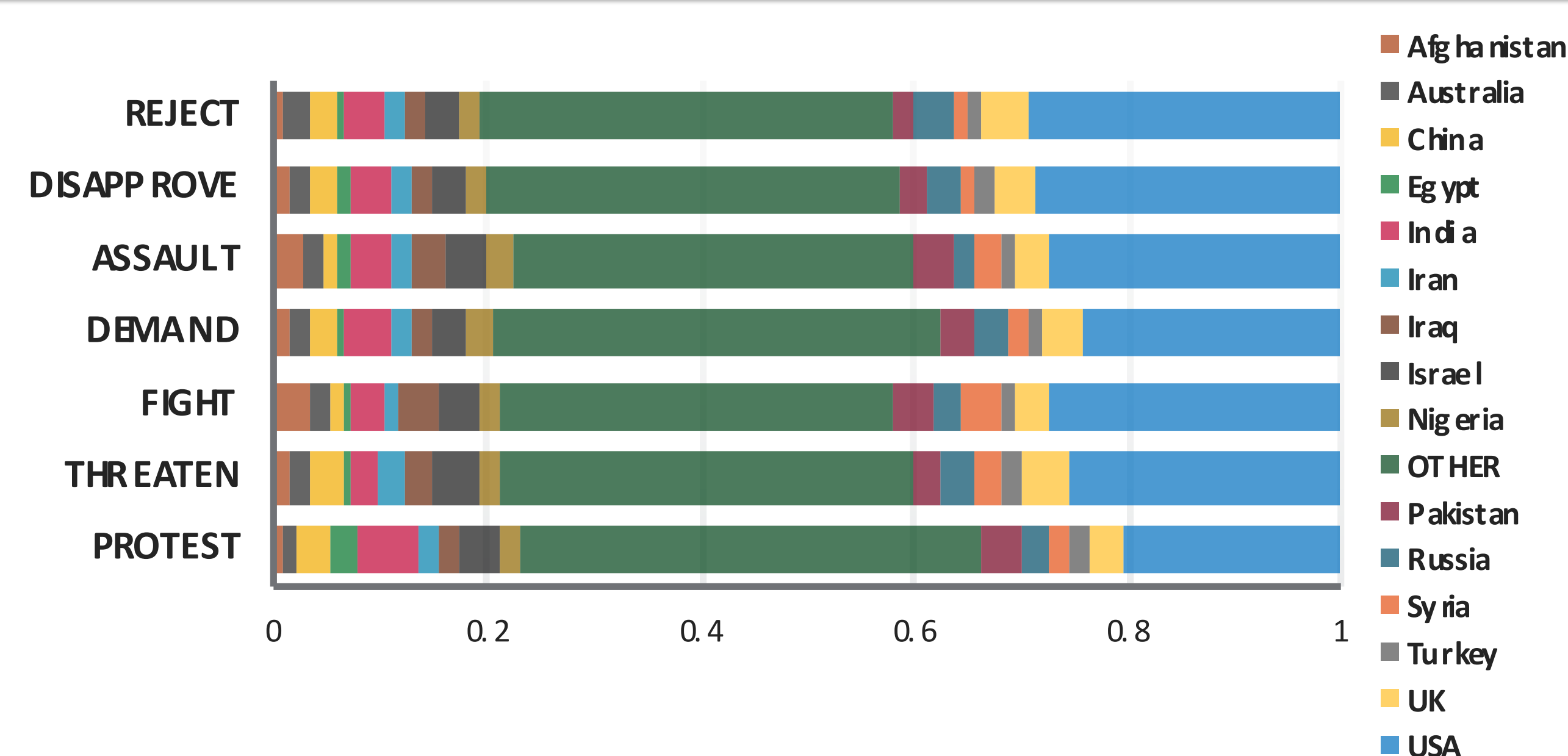
Dataset



GDELT Fields

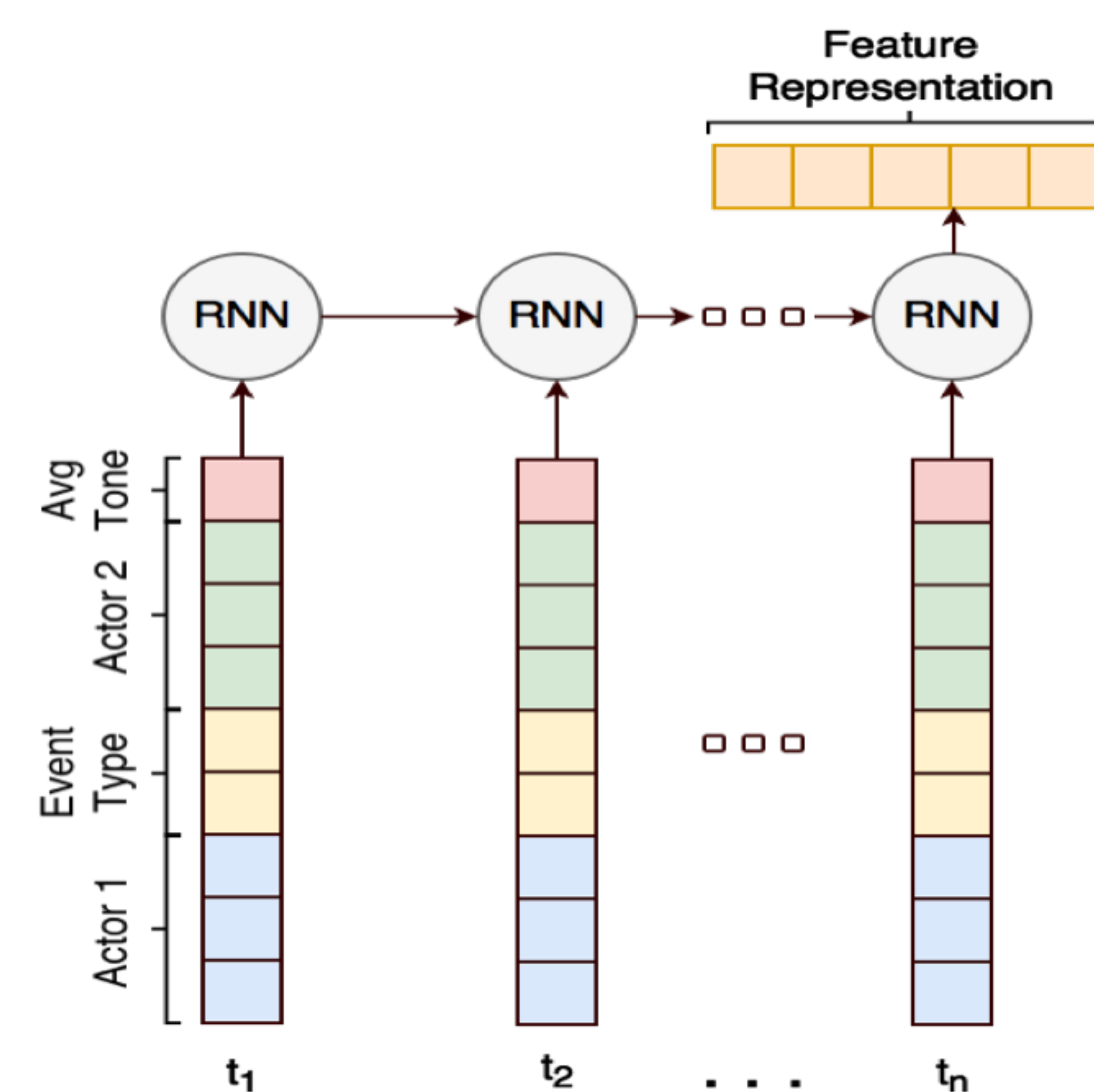
- ❖ EVENTID AND DATE ATTRIBUTES
- ❖ ACTOR ATTRIBUTES
- ❖ EVENT ACTION ATTRIBUTES
- ❖ EVENT GEOGRAPHY
- ❖ DATA MANAGEMENT FIELDS

Short-listing Countries

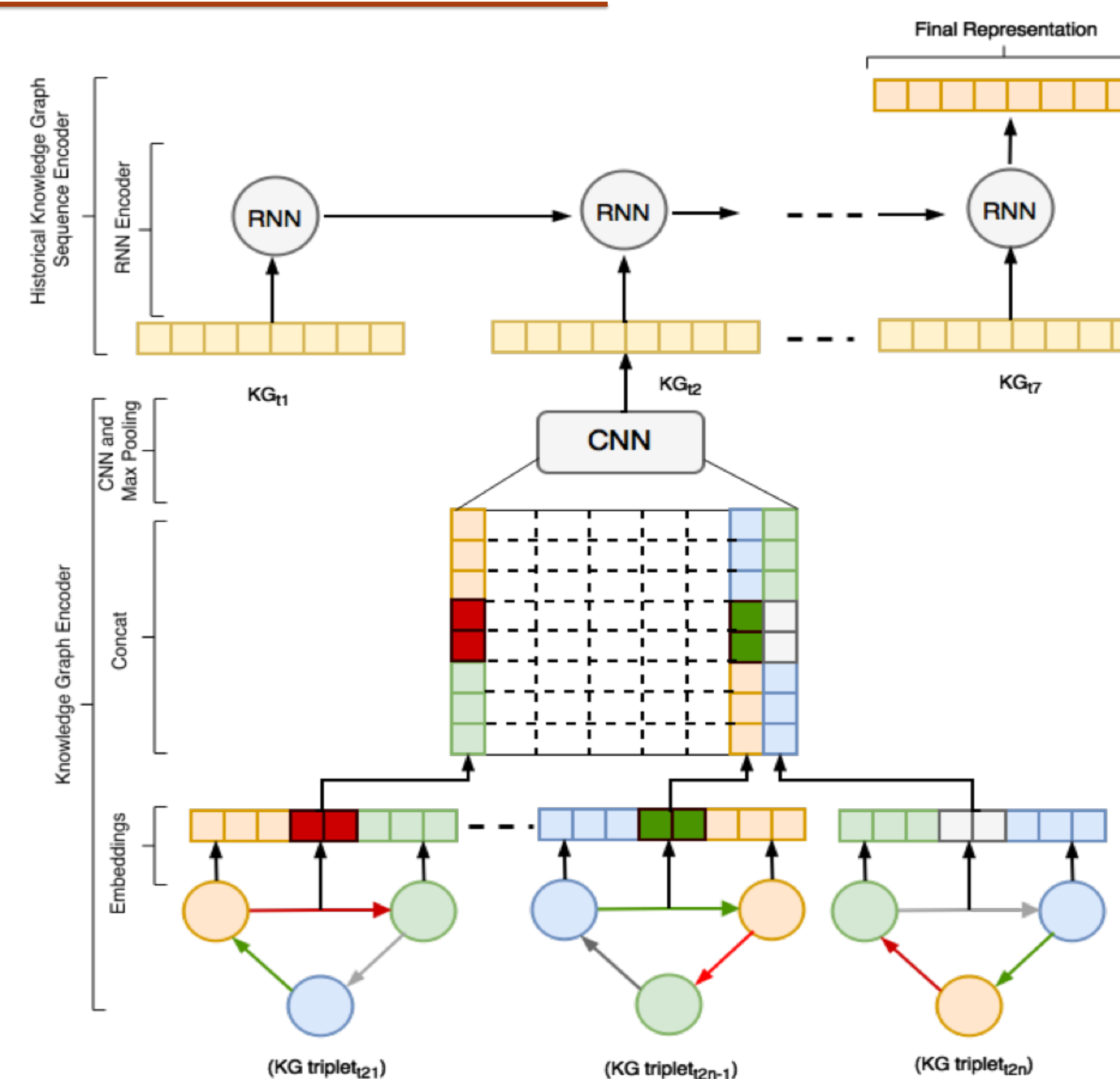


Methodology

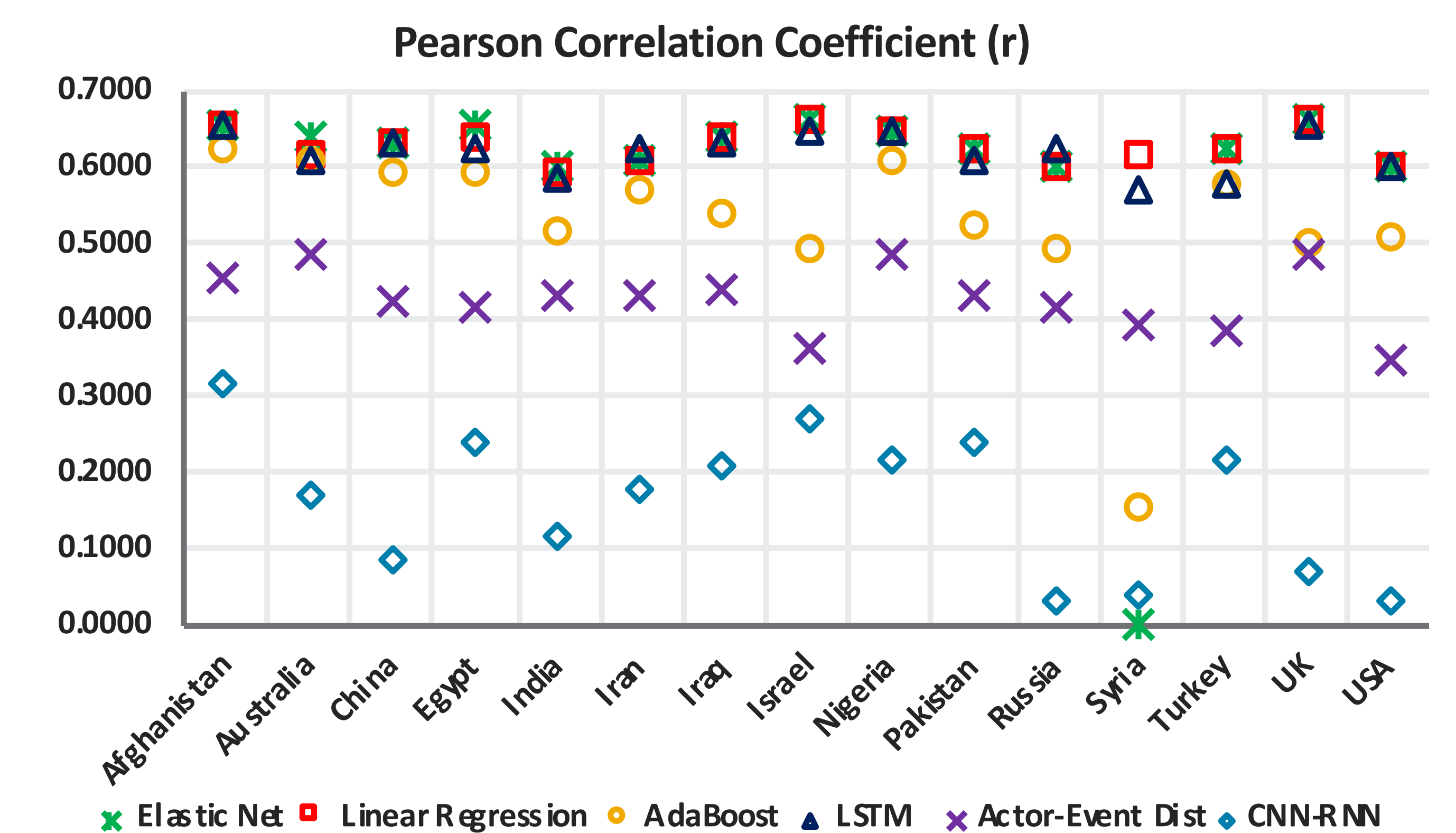
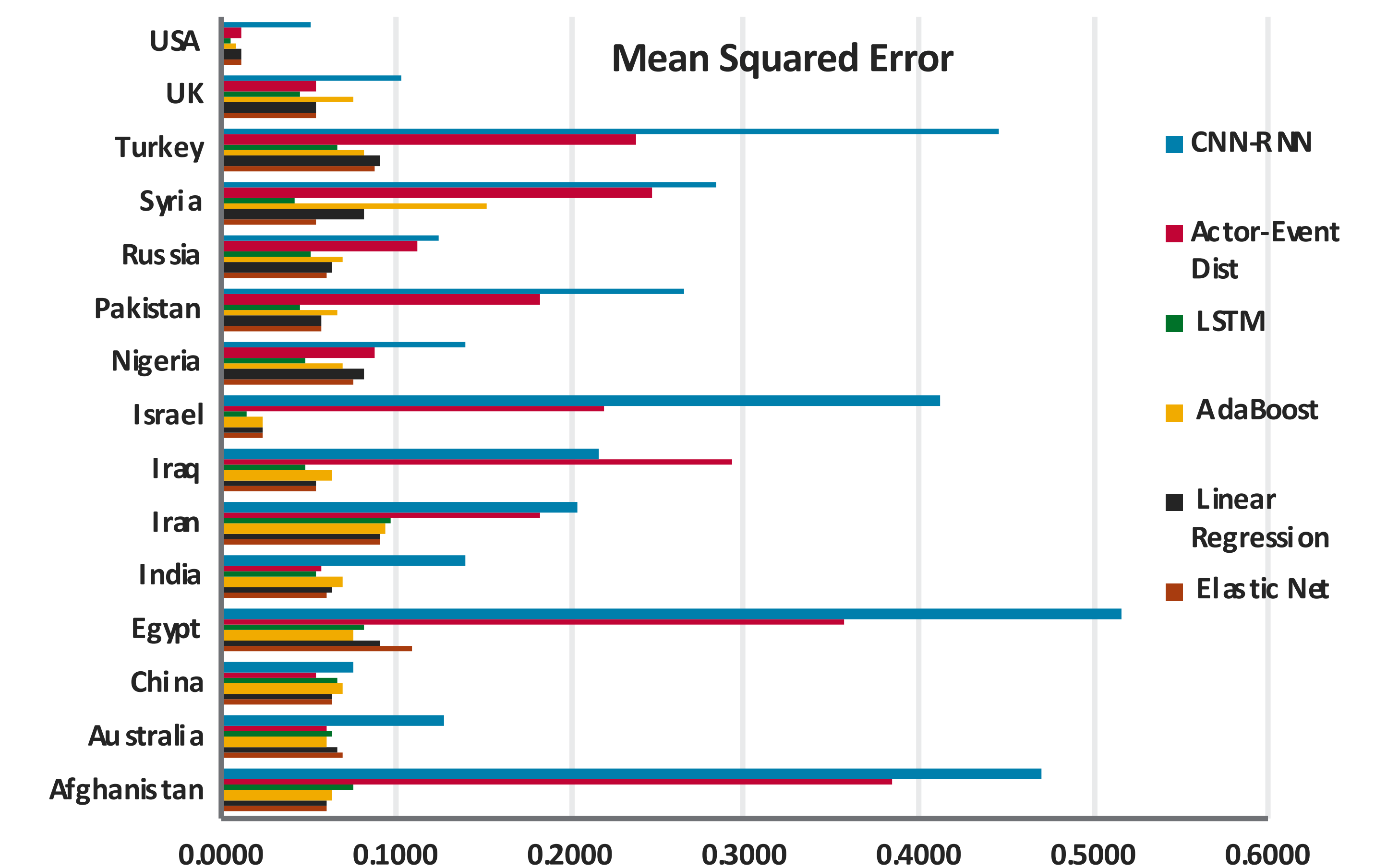
Actor-Event Distribution



CNN-RNN Model



Results



Conclusions and Future Work

- ❖ Vanilla RNN model trained on historical instability score performs the best.
- ❖ Use Graph Convolution Neural Networks instead of Convolution Neural Network.
- ❖ Apply deep graph models to wide range of tasks.
- ❖ Test the generalizability of deep graph models across multiple datasets from different domains.