Indigenous Knowledge Aware Drought Monitoring, Forecasting and Prediction using Deep Learning Techniques

Kidane W. Degefa

kidane1982@gmail.com [or] kidane.woldemariyam@haramaya.edu.et

Lecturer and Researcher at Haramaya Univeristy (Ethiopia)

April, 2020

ICLR-2020: Climate Change AI Workshop (Proposal Track)

Drought is a natural environmental hazard causing adverse impacts on vegetation, animals, and people.

1. COMMUNITY ORIENTED SOLUTION (INDIGENOUS KNOWLEDGE)

2. TECHNOLOGICALLY ASSISTED SOLUTION (AI / DEEP LEARNING)

Statement of the Problem

- Community Oriented Solution
  - Certainty
  - Structured Representation
- Technologically Assisted Solution
  - Large data set requirement
  - Model Interpretability & Visualization

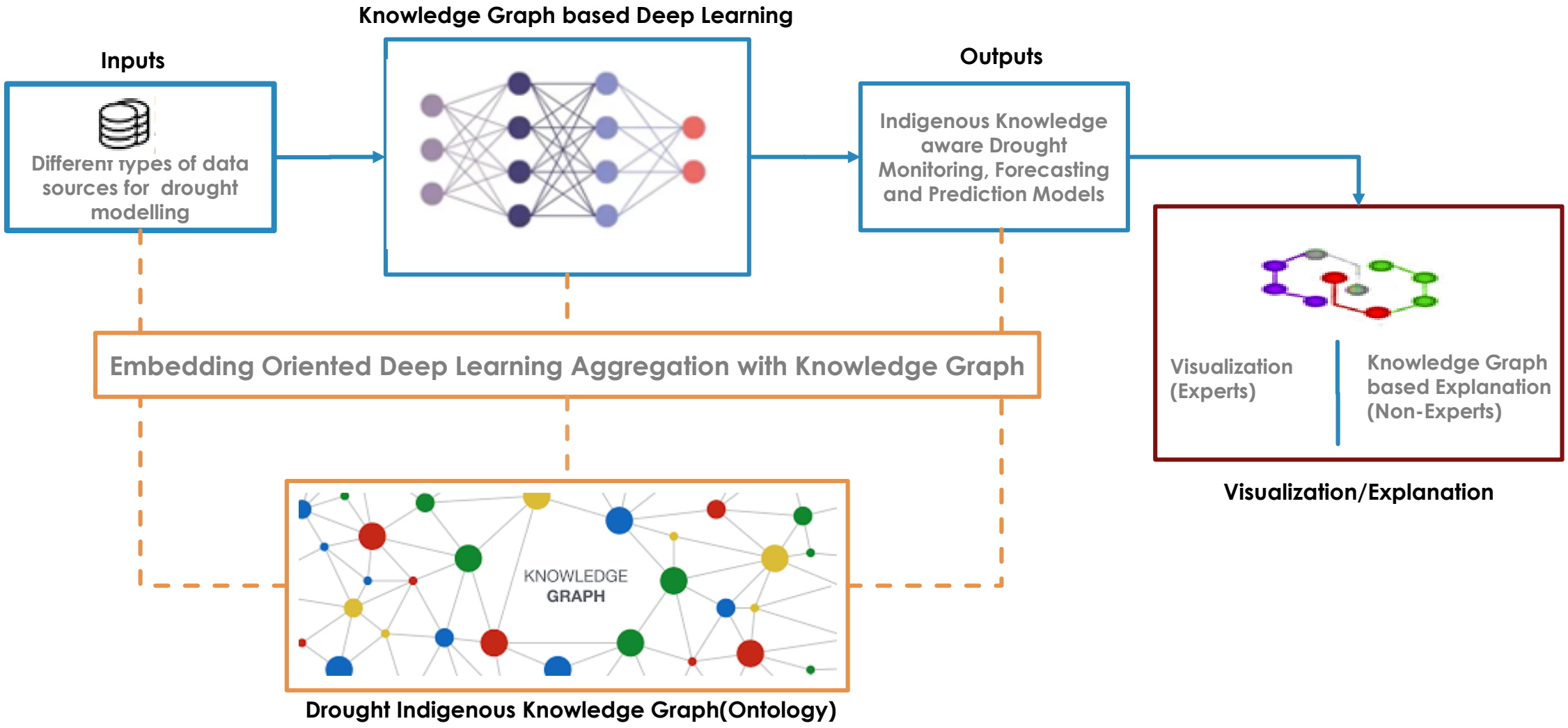
THE NATURAL PROGRESSION:

STRUCTURED INDIGENOUS KNOWLEDGE BASED LEARNING

The general objective of this proposed research work is to design hybrid comprehensive framework for drought monitoring, forecasting and prediction using scientific and indigenous knowledge.

KNOWLEDGE ORIENTED EXPLAINABLE- MODEL

Comprehensive Architecture



What is new?

- Learning from reasonable dataset
- Participatory Technological Solution
- Indigenous knowledge modelling and preservation
- AI model performance improvement and explainability
- Disambiguating and recognizing entities in context of drought

Conclusion

Deep Learning(connectionist AI)

+

Indigenous KGs(symbolic AI)

=

(Comprehensive, Explainable and Adaptable AI)

[for Drought Monitoring, Forecasting and Prediction]

Today's effective drought monitoring is Tomorrow's life saver!

Thank You for Your Attention!!!