Karlsruhe Institute of Technology
Institute of Applied Informatics and
Formal Description Methods (AIFB)
Web Science Group
Zhan Qu
zhan.qu@kit.edu

Call for Bachelor/Master Thesis:

ETARS: An Explainable Time-Aware GNN-based Recommender System

Background

In recent years, recommendation systems have become indispensable in our daily lives, facilitating users in discovering new content and products across diverse domains. However, there exists a growing demand for recommendation systems that not only deliver accurate suggestions but also elucidate the rationale behind their recommendations. Moreover, while many recommendation systems concentrate on static interactions, real-world user engagements dynamically evolve over time.
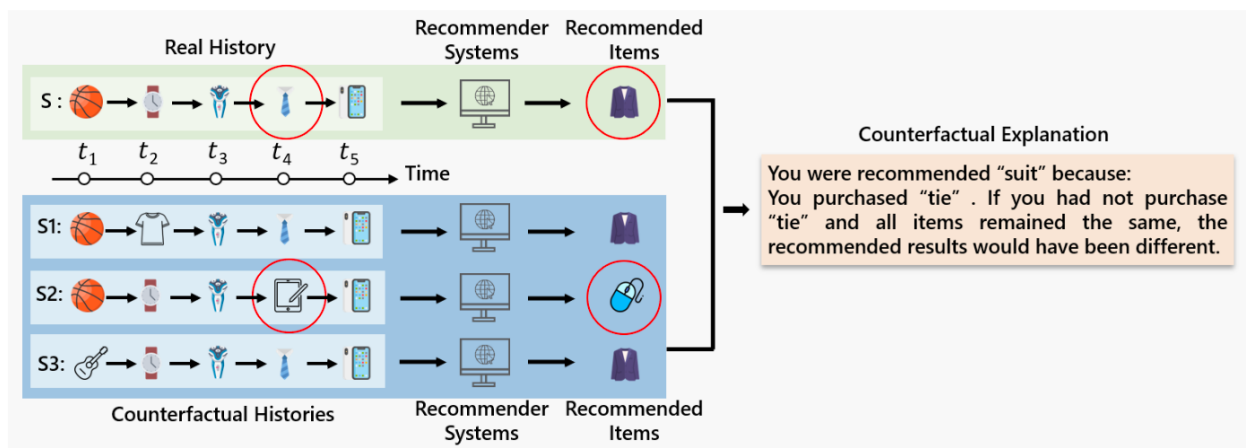

Figure 1: Counterfactual Explanations for Recommender Systems [1]

This thesis endeavors to address these challenges by proposing an innovative counterfactual explanation method tailored for time-aware Graph Neural Network (GNN)-based recommender systems. Engaging in this research will provide an opportunity to gain profound insights into leveraging cutting-edge explainable Artificial Intelligence (AI) techniques for interpreting temporal graph neural networks. Furthermore, it offers a chance to comprehend the operational intricacies of recommender systems.

Prerequisites

- Good programming skills in Python.
- Excellent communication and academic writing skills in English.
- Knowledge in Knowledge Graphs, Deep Learning and Artificial Intelligence.
- Experience with Graph Neural Networks and Explainable AI is a plus.

[1] https://www.mdpi.com/2076-3417/13/20/11176

Please send your questions and application (with a transcript of records and a CV) to:
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