



Entity Alignment and Product Matching

Principal Investigator

Prof H Yan	Chair Professor of Management Sciences and Director of MSc in Accounting and Finance with AI and Fintech Applications, City University of Hong Kong and Beijing National Accounting Institute Director, AIFT
Dr Q P Zhang	Associate Professor with the HKU Musketeers Foundation Institute of Data Science and Department of Pharmacology and Pharmacy at the University of Hong Kong Scientist, AIFT

Registered Patent Region	Patent/ Filing No.	Description	Issued/ Filing Date	Status
US	18/067,774	Entity Alignment and Product Matching	19 Dec 2022	Under Examination
China	202310116025.7	一种用于数据处理的模块及其方法	14 Feb 2023	Under Examination
Hong Kong	42024093089.1	A Module for Data Processing and Method Thereof (一種用於數據處理的模塊及其方法)	24 Jun 2024	Published

Stage of Technology Transfer: Commercially Viable Technology/ Product Ready for Sale
Research Area: Knowledge Graph and Machine Learning

Abstract

The present disclosure addresses the challenge of entity alignment between knowledge graphs, with a particular focus on cross-platform product matching. This problem is critical for retailers adjusting investment strategies and for customers comparing products across different e-commerce platforms. Existing methods inadequately utilize both entity attributes and inter-entity relationships, limiting their effectiveness. The disclosed data processing module enhances entity alignment by embedding entity nodes and generating relation-aware and enhanced entity representations through a series of graph attention mechanisms. The module partitions knowledge graphs into multiple channels, including name, structure, literal, and digital channels, to generate a comprehensive similarity matrix. This approach is applicable not only to product matching but also to other contexts such as multi-language question-answer knowledge graphs. The method outputs top-ranked similar products from one platform to another based on the similarity matrix, providing a robust solution to entity alignment in heterogeneous knowledge graphs.