Accenture – FS.AI – Knowledge Graphs

TIN-ACC-025

About the Organisation

FS.AI practice, Accenture’s department that works on providing AI-based solutions for financial services, sits within the wider multidisciplinary Data & AI team of experts across a range of academic and industry backgrounds. Join our team to help transform leading organisations and communities around the world. Accenture is driving these exciting changes and bringing them to life across 40 industries in more than 120 countries. The sheer scale of our capabilities and client engagements and the way we collaborate, operate, and deliver value provides an unparalleled opportunity to grow and advance.

Role Description and Responsibilities

Knowledge graphs is a data model that represents facts and events as nodes connected by relationships. It allows us to leverage vast amounts of structured and unstructured data to uncover insights. At FS.AI, we are pioneering the use of knowledge graphs in financial services to revolutionize how our clients get value from their data assets.

Our team has developed proprietary knowledge graph construction and insight generation pipelines which ingest client data and public/proprietary knowledge bases for creating value from unstructured information. The resulting knowledge graphs enable advanced analytics like impact modelling, process optimization and predictive analytics. They also introduce a structured layer for the knowledge base that adds more powerful context for applications using large language models. We now aim to enhance these capabilities by researching novel techniques for knowledge graph querying, reasoning, and time series analysis, among other areas of interest.

This project will focus on developing new methods and systems to make our knowledge graph tooling even more powerful. Example areas of research include temporal knowledge graph reasoning, node embedding for improved link prediction, and scenario analysis to model the impact of new information over time. The selected candidate will have the opportunity to publish their research and integrate successful methods into our knowledge graph analytics platform.

The Opportunity

We are seeking a PhD candidate with good previous exposure to graph theory and familiarity with natural language processing. You will work closely with our research team to explore new possibilities for knowledge graph analytics. This is a unique chance to have real-world impact by advancing our financial services solutions used by leading global banks and insurance firms.
Throughout the project, you will receive mentoring from senior members of the data science team at Accenture FS.AI. You will also gain exposure to real-world applications of AI in finance through interactions with client engagement teams. This is an exciting opportunity to grow your research skills and build your network in the applied AI field.

**Intern Responsibilities:**

- Propose and prototype novel knowledge graph querying and analysis methods, such as leveraging knowledge graph embeddings for improved entity linking and graph querying.
- Conduct literature review on state-of-the-art knowledge graph research, especially focused on techniques for information synthesis, link prediction, graph embeddings, and large language models.
- Rigorously evaluate proposed techniques on real-world and synthetic datasets relevant to financial services use cases.
- Work with engineers to integrate validated research contributions into our knowledge graph analytics platform.
- Present findings regularly to research team and senior leadership.

**Expected Outcomes**

The outcome of this internship will be the extensions of our relevant sub-graph selection, graph context creation, querying and impact modelling modules as well as improvements of the graph creation pipeline.

**Supervision and Mentorship**

This role will report into Accenture’s FS.AI and be supervised by Mudano Data Science R&D team, and project lead Rasa Guzelyte. The selected individual will become a member of Accenture’ FS.AI Data Science R&D group and will be expected to participate in the team’s collaboration and learning and development activities.

**Person Specification**

The ideal intern will have:

- A demonstrable passion for finding algorithmic solution to machine learning-related problems.
- A deep understanding of the best practices in Python development and strong familiarity with data structures and algorithmic efficiency.
- Ability to pause their PhD for the duration of the internship and to return to their studies upon completion.

Please highlight any experience working with graph data and methodologies, natural language processing and any other exposure to relevant techniques or Python libraries.
Internship Logistics
This internship will be based in Accenture’s UK HQ in Fenchurch Street, London.

**Start date:** January/February 2024
**Duration:** 6 months
**Remuneration:** It will be pro-rated based on an equivalent annual salary of £35,000.

*This is a full-time position, and we regret that we are unable to consider part-time applications.*