Με συνεπίβλεψη στελεχών της

Προτεινόμενα Θέματα Διπλωματικής Εργασίας

από

Accenture – Data & AI Center of Excellence (in Greece)

A. Active Metadata Management

Abstract:

The goal of AI-assisted Data Governance is to automate Data Stewardship manual processes and ensure the accuracy of the output produced. Generally, embedding intelligence into Data Governance will improve the overall productivity of the Data Consumer.
One such use case is Active Metadata Management, where GenAI can improve data findability and interpretation by accelerating data catalogue development through use of algorithm training against business documentation and metadata.

The deliverables include:
- Well-documented comparison of data catalogue development with and without the use of GenAI
- Documentation of challenges faced and how these were overcome
- Final MSc Thesis document

The result should be demonstrated with large number of real-world trajectories in the aviation domain.

Required background and skills: Python, knowledge of data governance tools/methodologies (plus), knowledge on GenAI (plus)
Other requirements: All documents must be written in English.

B. Reinforcement Learning for Stock Market Prediction

Abstract:

With the stock market's volatile nature, predicting stock prices accurately is challenging. This topic delves into the application of reinforcement learning techniques to predict stock market prices for specific stocks. By utilizing agent-based systems and requiring less historical data, reinforcement learning aims to predict higher returns by adapting to the current market environment. The goal is to enable investors to make informed decisions and potentially earn significant profits.

Required background and skills: Python, Reinforcement learning
Other requirements: All documents must be written in English.

C. Personalized Recommendation Systems Using Generative AI for Fashion E-Commerce

Abstract:

This topic focuses on utilizing Generative AI techniques to develop personalized recommendation systems specifically for the fashion e-commerce industry. Fashion preferences can be highly subjective and influenced by individual style, trends, and personal preferences. By leveraging Generative Adversarial Networks (GANs) or Variational Autoencoders (VAEs), the aim is to generate synthetic user profiles and preferences that capture the nuances of individual fashion tastes. This would enable fashion e-commerce

platforms to provide highly tailored recommendations to users, enhancing their shopping experience, increasing customer satisfaction, and driving sales.
The research would involve exploring different approaches to training generative models, evaluating recommendation performance, and addressing challenges such as data sparsity and scalability in the fashion domain.

The deliverables include:
- Thorough documentation of the different approaches implemented
- Performance comparison of the different approaches
- Final MSc Thesis document

Required background and skills: Python, GenAI prompt engineering
Other requirements: All documents must be written in English.

D. Intelligent Prompt Engineering to Increase GenAI LLM Efficiency

Abstract:

Identify user intent and dynamically engineer prompting to improve GenAI response/performance. Introduce autonomous AI agents that could breakdown user intent into tasks (chain-of-thought), generate each prompt and allocate execution to the respective LLM model to meet end-user intent

The deliverables include:
- Documentation of end-user scenarios that will be targeted as part of MSc Thesis (i.e. open-edited user input to generate insights from tabular data)
- Back-End Python Code, including:
    - Chain-of-thought prompting to improve the reasoning ability of LLMs
    - Fine-tuning LLM to reach end-user intent
- Thorough documentation of the different approaches implemented
- Final MSc Thesis document

Required background and skills: Python, Machine Learning, NLP, GenAI LLM (Prompt Engineering)
Other requirements: All documents must be written in English.

E. The Role of AI in Predictive Analytics for Economic Forecasting

Abstract:

Explore the use of AI techniques, such as transformer models, in improving the accuracy and reliability of economic forecasting models

The deliverables include:
- Final MSc Thesis document

Required background and skills: Python, Data Analysis and Statistics, Machine Learning, Econometrics (plus), Economic Theory and Forecasting (plus)
Other requirements: All documents must be written in English.