DETI Bot

Supervisors:

Mário Antunes mario.antunes@ua.pt

Group size: 4

Tags: Machine Learning, LLMs, RAG

Description

DETI is a department housing multiple student groups and research groups, which organize several different activities throughout the semester. Additionally, the department offers a wide range of educational opportunities. However, given the breadth of these activities and resources, it can be challenging to stay informed about everything happening within the department at any given time.

This project proposes the development of DETI Bot, a chatbot that monitors relevant resources (webpages, forums, Discords, and mailing lists) and provides a natural language interface for the DETI community to interact with.

Large Language Models (LLMs) enable the construction of chatbots that can interact with users through natural language. However, a major limitation is that fine-tuning LLMs is quite expensive, considering computational costs, dataset acquisition, and other factors. One method to overcome this limitation is to use Retrieval-Augmented Generation (RAG), a process where the LLM functions as a simple language model and is supported by an information retrieval system that indexes relevant textual sources.

Objectives

This project aims to develop a DETI Bot agent that leverages both Large Language Models (LLMs) and Retrieval-Augmented Generation (RAG) to monitor and index all relevant data sources pertaining to departmental activities. The bot will offer diverse interfaces for the community to seamlessly interact with this information.

Workplan

1. Product definition and requirements
2. Use case definition.
3. Identification of LLM, RAG and relevant data sources
4. First iteration of the frontend and backend components
5. Obtaining feedback from users
6. Second iteration of the frontend and backend components
7. Final demonstration