Abstract Format Capstone Design Expo (**AI Tool for Automated Scanning and Understanding of New Scientific or Technical Posts**)

Project Team: Kyle Vinod, Ryan Ta, Katie Martinez Baires

*Computer Science*

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Faculty Advisor(s): Tom Ardoz

Sponsor: VCU College of Engineering

Mentor: Tom Ardoz

This project introduces an AI-powered research assistant designed to enhance academic exploration by providing users with highly relevant article recommendations. The project was inspired by difficulties for different people in researching significant articles. The system leverages three AI APIs—GPT-4o, Gemini, and Claude 3 Opus—to compare their effectiveness in retrieving articles from arXiv, a widely used academic database. AI APIs interact with arXiv’s API to determine if articles are from the website, and if they are relevant. The AI models generate keyword-based queries, filter retrieved articles, and assess their relevance to ensure optimal recommendations. The application is developed with Python for back end logic and HTML/CSS/JavaScript for the front end, ensuring efficient performance and a user-friendly interface. To enhance scalability and data management, the system integrates with AWS cloud services, enabling secure user tracking and personalized notifications for newly relevant articles. The AI evaluates its recommendation quality using precision, recall, and F1-score metrics, ensuring that the most effective model is identified. The higher the scores in the metric, the better the model is in achieving its goal. By combining AI-driven search capabilities with cloud computing, this project aims to streamline the research process, making it easier for users to discover impactful academic content efficiently.

Keywords:AI, Natural Language Processing, Automated Alerts, Scientific Research

