ResearchPro - an LLM-based research assistant tool

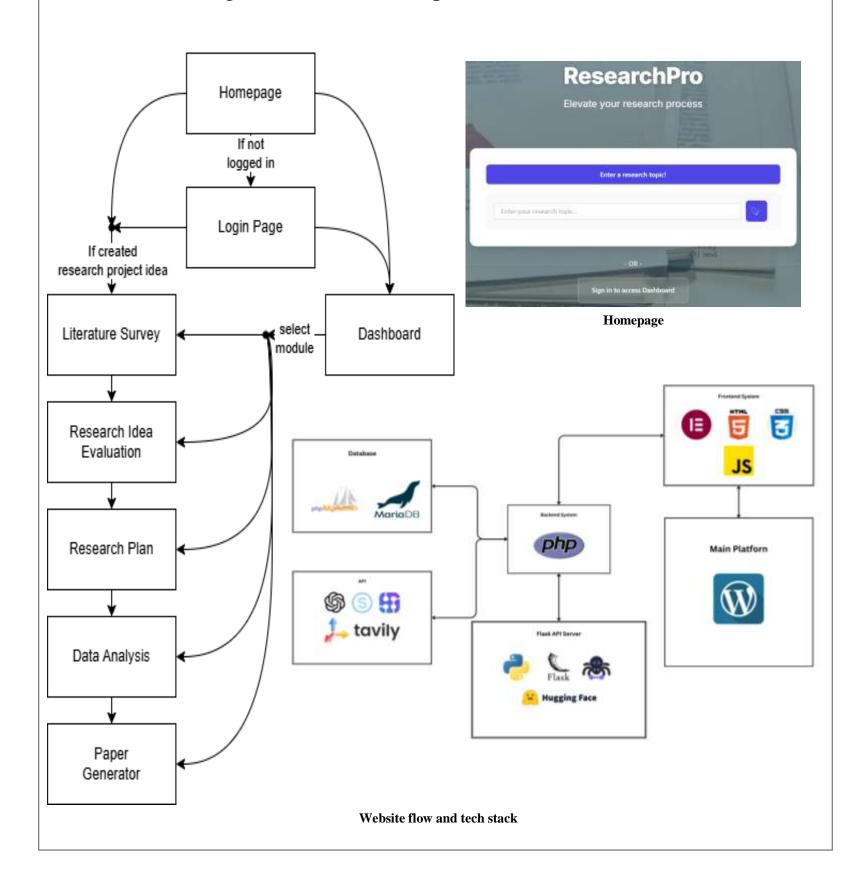## Wong, Hoi Chun
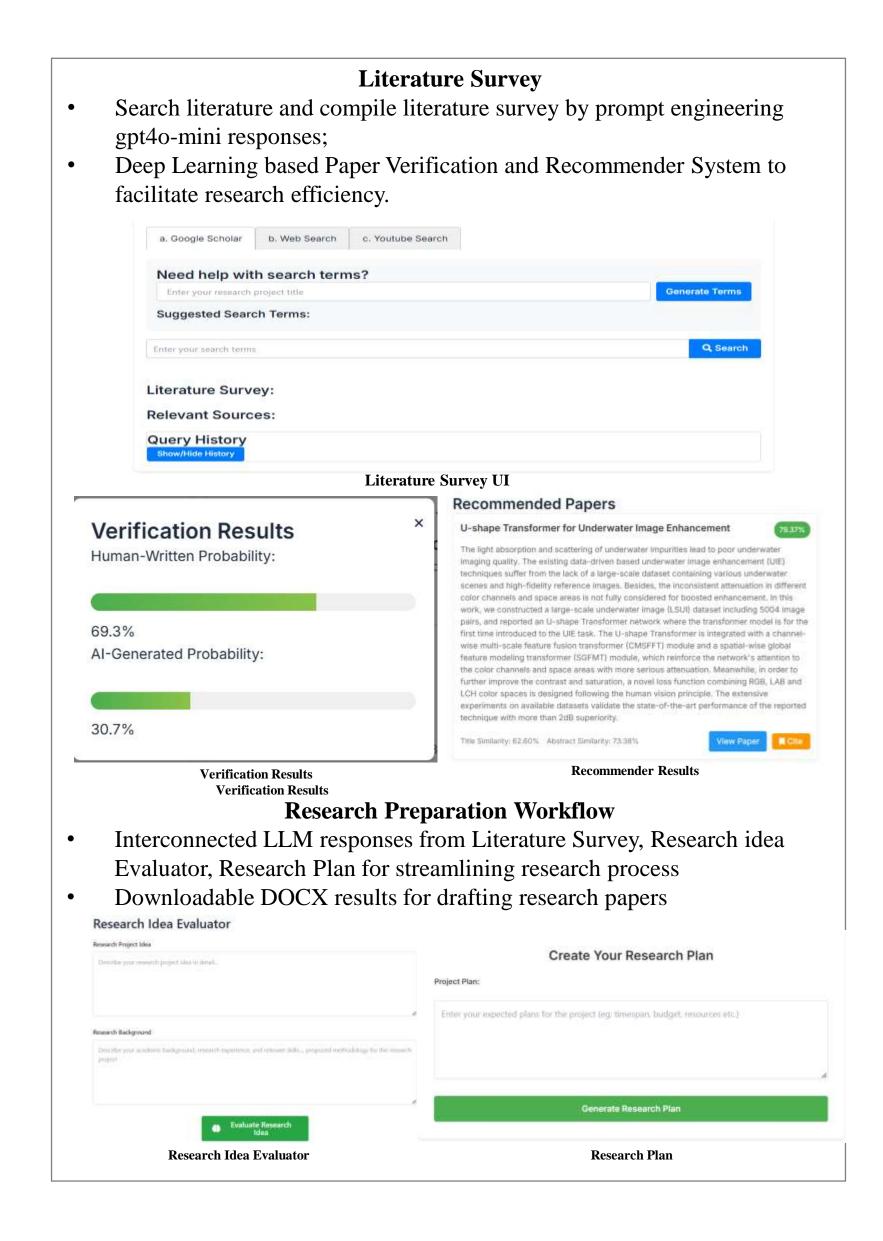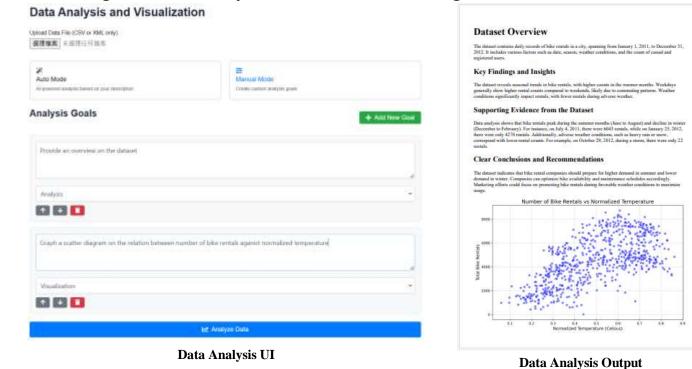Advised by Prof. Gibson LAM

Computer Engineering Program

Overview

- The rise of Large Language Models (LLMs) has transformed academic research
- Yet, there are challenges in current tools:
  1. Accuracy issues impacting academic credibility
  2. Complexity requiring technical expertise
  3. Ethical concerns related to plagiarism and originality
- **ResearchPro** is a GenAI-powered website platform designed to streamline research, integrate workflows, and promote ethical standards
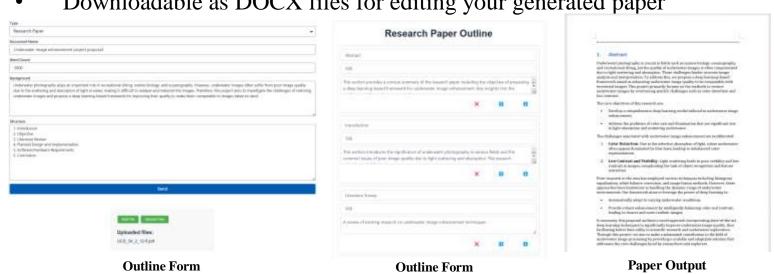

Website flow and tech stack

Homepage

Literature Survey

- Search literature and compile literature survey by prompt engineering gpt4o-mini responses;
- Deep Learning based Paper Verification and Recommender System to facilitate research efficiency.

Literature Survey UI

Verification Results

Recommender Results

Research Preparation Workflow

- Interconnected LLM responses from Literature Survey, Research idea Evaluator, Research Plan for streamlining research process
- Downloadable DOCX results for drafting research papers

Research Idea Evaluator

Research Plan

Data Analysis

- Analyse uploaded CSV files with LLM-based textual analysis and data visualizations
- Configure data analysis structure according to user's needs

Data Analysis UI

Data Analysis Output

Paper Generator

- Generate research paper drafts by configuring your outline parameters and structure in staging process
- Downloadable as DOCX files for editing your generated paper

Outline Form

Outline Form

Paper Output

Conclusion

The goal of this project is to design a research assistant website. By inputting user's requirements in the page modules, they can get meaningful outputs for facilitating the research process

Try out the platform : https://researchpro.sengital.ai/