CS/SE/CE 3354 Software Engineering

Project Proposal

ITSAMI

Image Tagging Software Applicable for Many Images

1. Group Members
    - Taufeeq Ali
    - Connor Ford
    - Fernando Hernandez
    - Bowen Liu
    - Tanner Raley
    - Asher Schubert
    - San Yun
    - Joel Zuniga
2. Proposed Implementation

We will be implementing a desktop application for an open-source image tagging tool that utilizes an LLM trained in image tagging parameters.

3. Motivation

Digital collage art involves local collection of thousands of images with varying styles. Artists have a lot to choose from between blueprints, text documents, 3D renders, even corrupt program outputs. A system to automatically tag and search through local archives of images already exists in the form of a command-line project called rclip by Yurij Mikhalevich but is based on the aging OpenAI CLIP model. A new system could be developed that utilizes a GUI for viewing images based on search queries and ran on a newer pre-trained image tagging model.

4. Delegated Tasks by Members
    a. Frontend (GUI)
        - Asher Schubert
        - San Yun
        - Joel Zuniga
    b. Backend (Model Interface)
        - Taufeeq Ali
        - Connor Ford
    c. Backend (GUI Interface)
        - Fernando Hernandez
        - Bowen Liu
        - Tanner Raley
5. Total Tasks
    a. Frontend (GUI)

- Create an application interface for the model. The application will be created using Electron, and written using HTML, JS, and CSS.

b. Backend (Model Interface)
   - Create an interface with the LLM to run commands and parse results for use in the application. Interface will be written in Node.js.

c. Backend (GUI Interface)
   - Create an interface with the GUI and model interface to parse inputs and display outputs. Interface hooks will be created using Node.js.

6. Scholarly Papers

Mikhalevich, Yurij. “Using Text Queries to Look up Unlabeled Images: A Command-Line Search Tool Based on Clip.” *ThinkMind(TM) Digital Library*, 26 June 2023, www.thinkmind.org/index.php?view=article&articleid=content_2023_1_20_60011.