**Filesearch+**

**GROUP MEMBERS & ROLES**

Software Developer: Hao Wu

Software Designer: Henry Volodin

Systems Analyst / Test Engineer: Jennie Cha

**PROBLEM STATEMENT**

Digital photos accumulate rapidly on computers, so users often struggle to find specific images quickly. Filesearch+ will address the need for an efficient image categorization system and allow users to seamlessly search, locate, and manage pictures on their computers. Solving this problem by enabling quicker access to desired images can simplify image management, reduce searching time, and enhance productivity. For instance, users can manage unnecessary images that are taking up storage.

**PROPOSED SOLUTIONS**

We plan to combine different pre-trained machine learning models in Python to detect the objects in the image and put tags in it. Hence, the users can search the image by the keywords. The mechanism for machine learning object detection is to extract and combine low-level features of the object, like color, edge, texture, gradient, and frequency-based features, to enable machines to detect complex features, like a cat and a person. Also, the algorithm is developed to refine the model by comparing the predictions and the labels by each iteration. Hence, detection can achieve high accuracy when big data input is available.

The program we design should have the function: When the users enter a keyword to search, the program starts to detect the object of that keyword and shows the user all the images with the object.

Key features will include:

Metadata categorization

Sorting images by date, file type, and location.

Content Analysis

Using basic image recognition to detect and group photos with similar content.

Custom Tagging

Allowing users to add tags for personal organization.

**TECHNOLOGY SLACK**

Programming languages, tools, frameworks, or libraries to develop the solution.

Programming Language

Python

Libraries/Frameworks

Numpy, OpenCV, Caffe, OS, scikit-learn, matplotlib

Additional Tools: IDE

Visual Studio Code, Spyder, Anaconda, Jupyter

**ROLES & RESPONSIBILITIES**

Specific tasks or areas of responsibility to each group member.

Hao Wu (Software Developer)

Codes and implements core functionalities, including image processing and database management.

Henry Volodin (Software Designer)

Designs the program’s user interface and user experience (UI/UX), ensuring the application is intuitive and accessible.

Jennie Cha (Systems Analyst / Test Engineer)

Oversees system requirements, testing protocols, and quality assurance, ensuring all features meet project specifications and function.

**TIMELINE & MILESTONES**

Week 1 (Nov. 4 -10)

Learn required technology slack, project planning, requirements gathering, and design draft.

Week 2 (Nov. 11 - 17)

Develop image processing and categorization modules.

Week 3 (Nov. 18 - 24)

Build and test the graphical user interface.

Week 4 (Nov. 25 - Dec. 1)

Any troubleshooting and build on UX and UI.

Week 5 (Dec. 2 - 8)

Final testing.

**POTENTIAL CHALLENGES & RISKS**

Potential challenges or risks during the project.

Image Recognition Accuracy

Implementing reliable image recognition may be complex. To mitigate this, we’ll use pre-trained models and focus on basic categorization.

Data Privacy

For privacy concerns about categorizing personal images, ensure local processing.

Time Constraints

Stay on track by regularly checking the Timeline & Milestones section in order to balance development and testing within the timeline.

**CONCLUSION**

Filesearch+ will produce a user-friendly image categorization tool to improve image management on personal computers. We expect to create a solution that is functional, reliable, and enhances productivity.

**Document prepared by**

Jennie Cha

**Date**

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