

Lab 2: Information Retrieval

1854116
Mingzhi Zhu

Image Search Engine
June 5, 2021

Contents

1	Describe the Requirements	2
1.1	Homepage	2
1.2	Upload Ways	2
1.3	Waiting Logo	2
1.4	Show the Result	2
1.5	Result Classification	3
1.6	Clear	4
2	Design for Five-Stages Search Framework	4
2.1	Formulation	4
2.2	Initiation of Action	6
2.3	Review of Results	7
2.4	Refinement	8
2.5	Use	9
3	Implementation	10
3.1	General	10
3.2	Drag Collection Function	10

1 Describe the Requirements

A image search task contains these following portions. My following discussion will take Google image search engine as an example.

1.1 Homepage

A homepage which hold a brief introduction to let the user know what can this image search engine do. The homepage of Google image search engine is shown in the figure1 below.



Figure 1: Google Image Search Homepage

1.2 Upload Ways

Image search engine should provide users with ways to upload images. Google image search engine has three ways to upload pictures of users. Users can drag the image to upload or input



Figure 2: Three Ways of Upload

the image address to upload or select image to upload through the select window.

1.3 Waiting Logo

When users upload images, search engine need time to retrieve similar images. During this time, engine should show a waiting logo, which can relax the users when the engine is searching. This part is shown in figure3.

1.4 Show the Result

- Show the image source file to let the user know which image he/she upload to search just now. The size of this uploaded image should be smaller than the original image so that not taking up a lot of page space. The focus of page space should be on search results.



Figure 3: Waiting Logo

- Show the total number of the result which can let the user know how many images are similar to they pictures in the engine. The number should be emphasized and users can easily find out how many similar results they have found.
- Following figure4 shows how Google engine show its search results.



Figure 4: Search Result

1.5 Result Classification

- Classify the images of the result, which can let the user browse the result distinctly and the tags should be discriminative by using different color.
- There should present a favorites and the user can drag the images of the result to the favorites. And if user click the favorites, the search engine will display the images favored

by users only. If the user click the favorites again, favorites will close and search engine will display all the results.

- Users can click one tag, and the system should show the images which hold this tag only.

1.6 Clear

The search engine should provide two clear buttons, one to clear the uploaded image and the other to clear the whole search result. The purpose of these buttons is to help the user quickly start his next search. One example is that Google Image search engine provides two X buttons to clear search mark, as shown in figure5.



Figure 5: Clear Button

2 Design for Five-Stages Search Framework

2.1 Formulation

- A homepage contains a brief introduction about how to using the image search engine and provides a button to open the search image input box. The details of this portion are shown in figure6.



Figure 6: Search Engine Homepage

- After clicking the image recognition button, the user will jump to the image upload interface. The user can directly drag the image from the local to the input box and upload the image, or click the select-file button to open a pop-up dialog and select local image to upload. The details of this portion are shown in figure7,8,9.
- Users can preview the query image in the searching window after upload image. The interface shows the name and size of the query image, and provides a magnifying glass

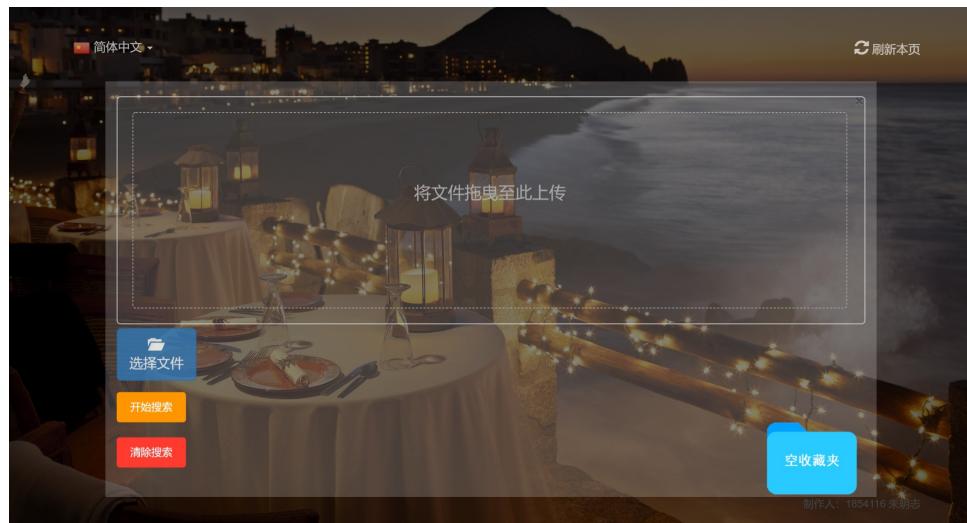


Figure 7: Image Upload Interface

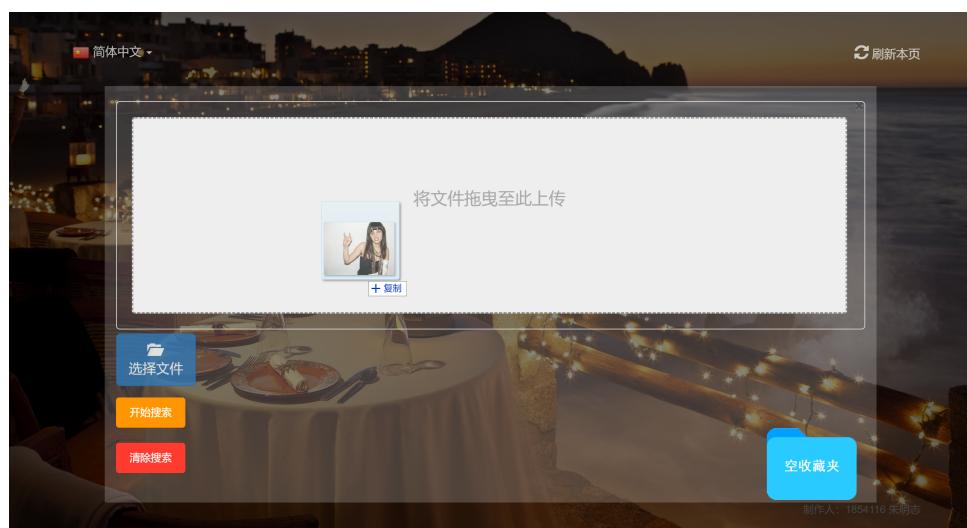


Figure 8: Upload Image by Drag Image

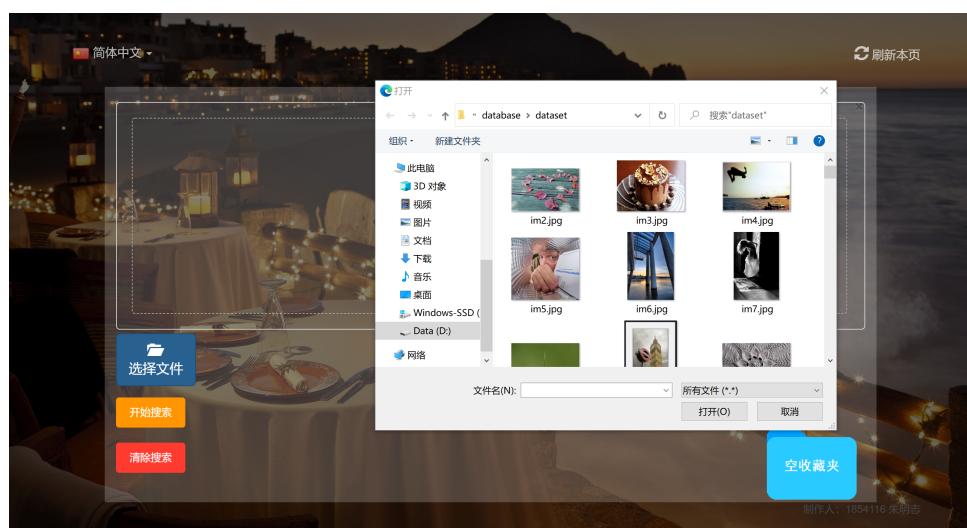


Figure 9: Upload Image by Pop-up Dialog

component to enlarge the preview of the image on the interface. The details of this portion are shown in figure10.

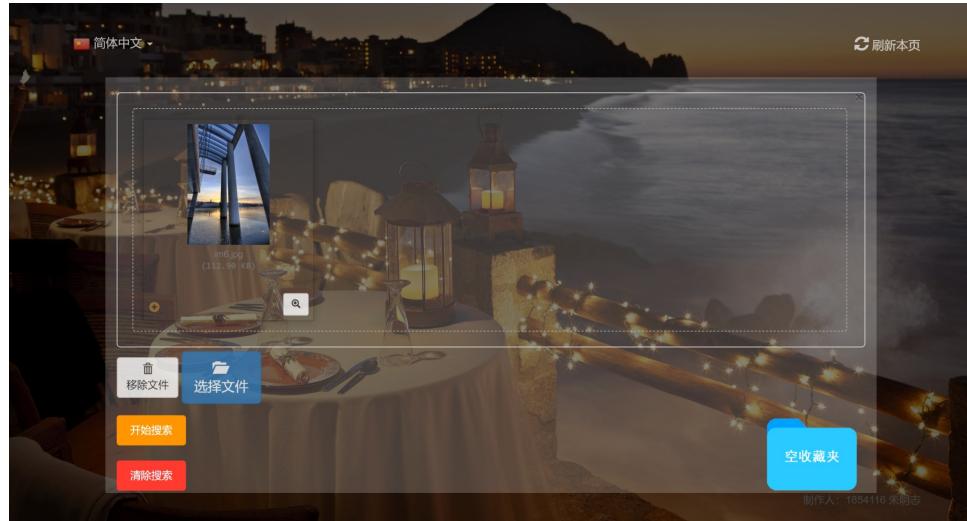


Figure 10: Preview Query Image

- After the user clicks the search image button, a waiting animation will appear to relax user.The details of this portion are shown in figure11.

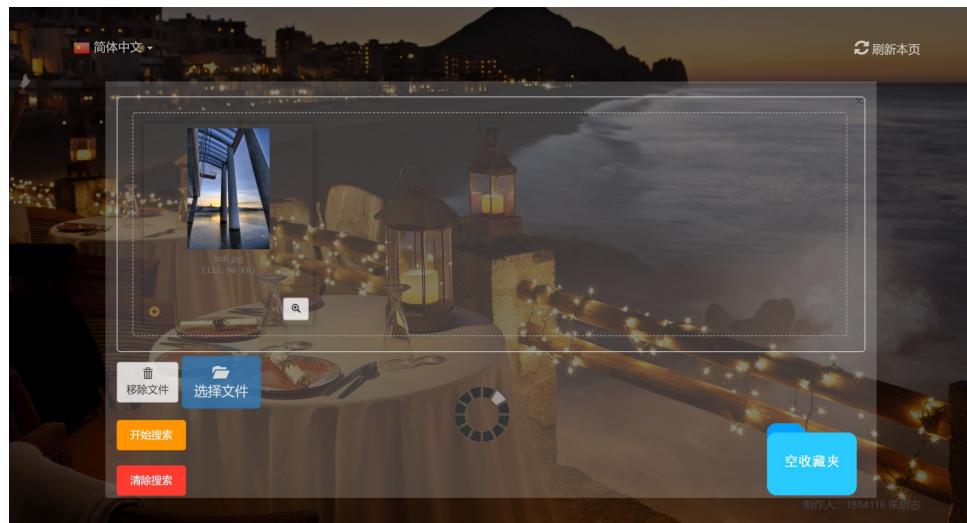


Figure 11: Relax User

2.2 Initiation of Action

- Interface has a *search* button.
- Interface has a *remove-file* button.
- Interface has a *select-file* button.
- Interface has a *remove-all* button.



Figure 12: Buttons

- Interface has a favorites icon. User can click the favorite icon to open the favorites, and then click the favorites again to close.

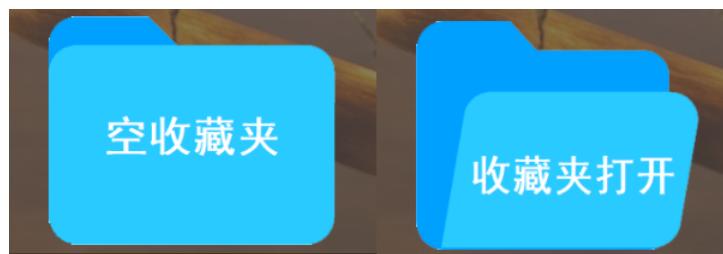


Figure 13: Favorites Icon

- Users can drag the image to the favorites, and the favorites icon will change to *not-empty*.



Figure 14: Favorites Not-Empty Icon

2.3 Review of Results

- When the search process finished, the result will appear and interface will keep search terms and constraints visible.

- On the bottom of the page is the number of searching results. User can overview the search result by reading this.



Figure 15: Review Results

- Users can click the resulting image to enlarge it, and click again to restore them.



Figure 16: Enlarge Results

2.4 Refinement

- Users can click the tag buttons on the left to view the image that only contain their favorite tags, or click favorites to view their favorite image. The details of this portion are shown in figure17.
- To make changing of search parameters convenient, the interface provides two clear-buttons to help users modify their search or begin a new search. If user wants to remove the image he or she uploaded, he can click the *remove-file* button. If user wants to restart the whole search process, he or she can click the *remove-all* button.



Figure 17: Filter the Results by Tags or Favorite

2.5 Use

Users can select images to a favorite list:

- At the beginning, the favorites icon displays as *empty favorites*.
- Users can drag their favorite images to the favorite icon, this operation is regarded as the user collect these images and the icon displays as *not-empty favorites*.
- Users can click the favorite icon to view their favorite images, and click again to close the favorites.



Figure 18: Open Favorites

References

- [1] Designing the User Interface: Strategies for Effective Human-Computer Interaction, 6th edition, Ben Shneiderman, Catherine Plaisant, Maxine Cohen

[2] UI-component,UI Kits, Templates and Dashboards built on top of Bootstrap,<https://www.creative-tim.com/>