

# Lab3: Information Retrieval

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## Introduction

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This is the third LAB of HCI ( `Human-Computer interaction` ) course. This project will use image recognition technology to implement a MATLAB based image search engine. In order to make the experiment better, I revised some of the code provided by the teacher and described the contents and purposes of these modifications in the report. According to the teacher's request, I chose category screening in two Refinement requirements. In this `README` file, i will introduce how to use the system on MATLAB and describe the usage.

## Usage & Screenshot

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The current Image Search System provides a total of two search methods, which are divided into simple search and advanced search. The system will provide two pages, namely Simple Search Interface and Advanced Search Interface. These two methods can jump through a button. The difference between the two searches is mainly the restriction of **Category**, and more detailed information can be obtained in the later description. The search results will be displayed in `resultReviewInterface`, and the results display interface also provides a refinement operation function based on category.

**P.S. In the following description, i use \* to indicate that the current step is optional and we can skip it.**

## Pre-Operation

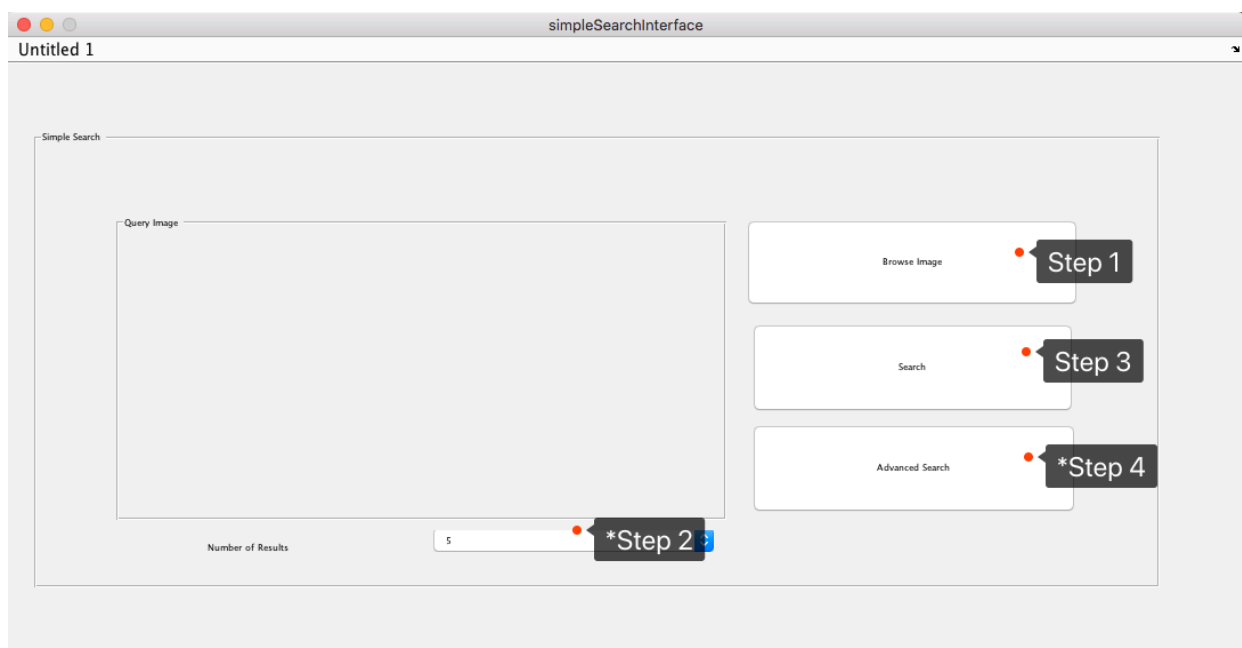
- First, please ensure that the `MATLAB` program is configured on the user's computer, and the development environment of the project is `MATLAB_R2017b`.
- Open Matlab, enter the project directory, and enter the `simpleSearchInterface` in the console to run the project.
- The first page is a simple search interface. The use of other interfaces can be seen later.

## Simple Search Section

In the simple search part, users only need to provide pictures to be searched. The operation process is as follows:

1. Click on the **Browse Image** button, and select the picture you want to search in the pop-up file selection box.
  - The system only accepts **.Jpg, .Png, and .Bmp** three formats.
  - After selecting pictures, the system will automatically display the selected pictures in the left Query Image picture display box.
2. \*Under the picture display box, you can choose **Number of Results**.
  - This step is optional. If skipping, **5** matching images will be displayed by default as search results.
  - The current version of the system only has **5, 10 and 15** three options.
3. Click the **Search** button, and the system will automatically execute the search process.
  - Automatically close the current window after the search is finished, and jump to the result display interface to display the results.
4. \*Click the **Advanced Search** button and jump to the advanced search interface.
  - This step is optional. If you want to proceed with advanced search, you can perform this step.
  - detailed use will be introduced in the next section.

*Below is a simple search interface screenshot that can be used in conjunction with the above steps.*



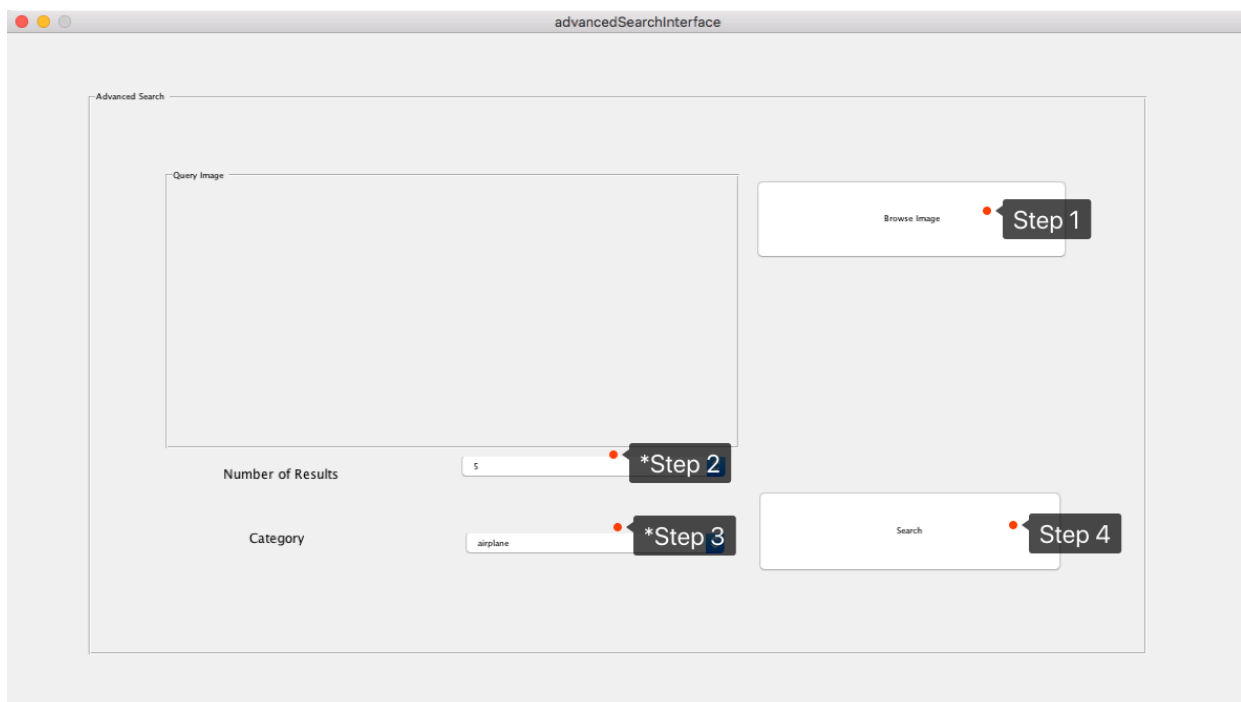
## Advanced Search Section

In the advanced search part, users need to provide pictures to be searched and categories wanted. The operation process is as follows:

1. Click on the **Browse Image** button, and select the picture you want to search in the pop-up file selection box.

- The system only accepts `.Jpg, .Png, and .Bmp` three formats.
  - After selecting pictures, the system will automatically display the selected pictures in the left `Query Image` picture display box.
2. \*Under the picture display box, you can choose `Number of Results`.
- This step is optional. If skipping, **5** matching images will be displayed by default as search results.
  - The current version of the system only has **5, 10 and 15** three options.
3. \*Category can be selected below the result number selector, that is, the type of search result selection.
- This step is optional, if skipping the most matching picture that displays the default `airplane` category as the search result.
4. Click the Search search button, and the system will automatically execute the search process.
- Automatically close the current window after the search is finished, and jump to the result display interface to display the results.

*The following is a sketch map of the advanced search interface, which can be combined with the above steps.*



## Results Review Section

The search results mentioned in the two parts will be displayed in this section. In the introduction of this part, we will take **the simple search results** as an example. *P.S. if you haven't gone through the first two parts of the search process, please search first and then operate the current interface.*

1. \*Choose the category in the lower left **Refinement** area and conduct two screening of the results.
  - This step is an optional step.
  - Based on category selection and size based selection, this operation has chosen category based. Therefore, the latter has no effect in this system, and the selection will not get responds.
2. \*Conduct second searches, that is, change the picture for the next search.
  - Select the required search method in the **Start Another Search** area on the upper right corner.
  - Clicking the **Search** button will close the current page and jump to the simple search interface.
  - Clicking the **Advanced Search** button will close the current page and jump to the advanced search interface.

