Carl-Hauser - Documentation

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February 2019 - August 2019

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Chapter 1

Introduction

Goal The goal of this document is to provide an overview of how the carl-hauser library is built, from API to core computation.

Methodology A State of the Art overview had been performed and is available on the project page at `https://github.com/Vincent-CIRCL/carl-hauser`

In the following, we expose :

- ...

Problem Statement [Cevikalp et al.,] states the Image Retrieval problem as "Given a query image, finding and representing (in an ordered manner) the images depicting the same scene or objects in large unordered image collections"

Please, be sure to consider this document is under construction, and it can contain mistakes, structural errors, missing topics .. feel free to ping me if you find such flaw. (Open a PR/Issue/...)

Chapter 2

API

2.1 Calls

In the first version of carlhauser, following calls are available. Note that this is the minimal API given the problem.

- PING : Allow to quickly check if the API is alive
- ADD PICTURE : Store a picture in the database, that could later be fetched if close to a request picture. Returns the ID of the added picture, as stored in the database.
- REQUEST SIMILAR PICTURE : Performs a request on the database, to fetch similar pictures. Returns a request id to later fetch results.
- GET RESULTS : Given a request id, returns a formatted JSON of results (list of similar pictures ids).

2.2 Design

2.3 Ressources

- Flask documentation : `https://www.tutorialspoint.com/flask/flask_http_methods.htm`
- Extensive tutorial to build REST API with Flask : `https://blog.miguelgrinberg.com/post/designing-a-restful-api-with-python-and-flask`

Chapter 3

Components and libraries

Chapter 4

Parallelism

Chapter 5

Database operations

Chapter 6

Core computation

Chapter 7

Visualization

A visualization tool had been built for the occasion and is available at `https://github.com/Vincent-CIRCL/visjs_classificator`

Bibliography

[Cevikalp et al.,] Cevikalp, H., Elmas, M., and Ozkan, S. Large-scale image retrieval using transductive support vector machines. 173:2–12.