



# Automatic Multimedia Analysis services

[www.projectmarconi.eu](http://www.projectmarconi.eu) / [contact@projectmarconi.eu](mailto:contact@projectmarconi.eu)

## Metadata extraction

The services provide capabilities for automatically extracting technical and descriptive metadata from multimedia content, enabling understanding, matching and searching of image and video content. This includes metadata such as recording properties and location, quality metadata, detecting and recognizing persons and detecting common object classes.

## Geolocation

This service allows for the extraction of geo-coordinates and a semantic location from the EXIF data of photos. If geolocation information is not found in the EXIF data, MARCONI provides an additional visual location matching service that can be used to perform clustering of the content.

## Visual quality

Information about the visual quality of images and videos (e.g., level of sharpness) and the presence of impairments (e.g., noise, blocking artefacts, lost blocks or frames) can be extracted in order to filter content and select items appropriate for reuse.

## Face detection and recognition

The information about persons provides important insights into multimedia content. The services enable the detection of the presence of faces and the recognition of persons, which have been trained. Tracking is used in video to increase the robustness in case of moving or only partly visible persons. The method is able to work with only few training samples per person, thus facilitating adding new persons. The face recognition algorithm allows for automatically training persons repeatedly encountered in the content, so that they can be linked to an identity later without re-analysing the content. The face recognition engine only uses generic identifiers, so that a link to a person can only be established using the PriVaults privacy-aware data store.

## Logo detection

The presence of product and company (or more generally, specific symbols) is an important criterion for searching and filtering content. New logos can be made easily searchable by just providing one or few samples.

### About Automatic Multimedia Analysis Services

A set of RESTful services for automatically extracting metadata from images and videos that facilitate describing, searching, comparing and selecting user generated and professional content, which can be deployed locally and in the cloud. The services are a solution developed by JOANNEUM RESEARCH and IN2.

### About MARCONI

The MARCONI project aims to bring radio experiences to the next level by enabling fully interactive and personalised radio solutions, integrating broadcast radio with digital and social media. munication channel in various ways. Visit for more information: [projectmarconi.eu](http://projectmarconi.eu)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 761802



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## Object detection

The services provide capabilities to detect and locate the presence of hundreds of common object classes in images or video. This enables indexing multimedia content with concepts in order to enable efficient text-based search and filtering.

## GPU acceleration

The analysis services are designed to take advantage of state-of-the-art hardware acceleration provided by graphics processors (GPUs) for fast processing and high throughput.

## Proxy generation

The services support the generation of proxies such as lower resolution versions and key frames of video for preview and browsing.

## Microservices

The analysis services are deployed as microservices using a Docker container, which enables scalability and running the services both on on-premise infrastructure and in the cloud.

## Text indexing

The service allows for the insertion of social media posts and communication messages, their indexing, retrieval and removal from an index (that can be later used by a search service). The service creates a full-text index and several indexes for filtering and faceting results. The full-text index is primarily used as part of a search request, while facets allow to refine a result set based on select characteristics. As part of the process, compound word splitting and stemming is performed together with tokenizers to break words that e.g. contain numbers. Furthermore we extract and index mentions (e.g. @username) and hashtags (e.g. #hashtag). Depending on the application use case the service can include domain-dependent stopword lists, synonyms and protected word lists. Furthermore, the service allows for running in parallel many environments (item collections and search indexes) and enables so dedicated frontend applications.

## Searching

The service uses an existing index (e.g. like the ones created by the Text Indexing service) in order to allow for complex queries to be made. The queries could contain a mix of keywords, @usernames, #hashtags, logical operators, wildcards and facets. The service will return a fixed number of results based either on a configurable pagesize.

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