

Semantic Analysis and Classification of Digital Image-Streams

Background

The task of this project is to develop concepts and techniques for the analysis, classification and processing of digital images and image-streams. Today, digital images represent a major category of media captured, delivered, and shared on the web and social media platforms. Over the recent years, both the examples of misusing of image data as well as the demands of individuals for the effective protection of privacy are increasing dramatically. For example, Google Street View images often contain sensitive information (e.g., people, car license plates), which intervene in the privacy. Automatic classification and blurring of images (and sub-regions) are important tasks for an automatic processing and delivering of digital media.



Description

The master's project is based on an existing research framework for analysis and filtering of 2D images and image-streams. The master project comprises the following aspects:

1. **Out-of-Core image processing techniques:** This system component should extend the framework by Out-of-Core import and processing techniques (e.g., tile-based streaming approaches).
2. **Robust feature identification:** This system component robustly and accurately identifies and classifies features (e.g., cars, people, digital images and streams) in images and image streams.
3. **Image-Processing:** Subsequent to feature identification and classification, multiple hardware-accelerated image-processing operations organized in a digital library are applied to the identified features.

The topic links to current research and software projects of the HPI's Computer Graphics Systems group. It is especially suited for further research in the context of a master thesis or as preparation for a topic of doctoral thesis. Furthermore, the master project can be used to start working as a student assistant.

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