

"Smart Video"

This master project aims at developing techniques for real-time analysis, processing, and rendering that transform videos "in a smart way". The software features to be developed handle *information density*, e.g., video summarization by shortening video parts with low visual dynamics, and *privacy*, e.g., blurring faces of depicted persons or "cartoonifying" videos. The software architecture is based on *SaaS*, which defines analysis, processing, and rendering services.



Students should investigate the following topics (not limited to):

1. **Visual Video Summarization:** How can relevant segments of videos be visually summarized in both a computationally efficient and perceptually effective way?
2. **Privacy Protection:** What are effective techniques to ensure privacy by blurring/pixelization of key elements such as human faces or texts?
3. **Web Services:** How can we implement these services within a service-based architecture? How can the implementations be ported to mobile devices as well?
4. **Cross-Platform Development:** How to achieve a cross-platform implementation for heterogeneous mobile software and hardware architectures (based on Qt mobile)?
5. **User Interfaces:** To design a compact user interface for key parameters of the proposed techniques?

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 to get in touch a direction for a future doctoral thesis. Further, the master project can be used to start working as a student assistant or software developer at our research partner Digital Masterpieces GmbH (www.digitalmasterpieces.com)

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