

Service-based Video Processing

This master project aims at developing a number of *real-time analysis, processing, and rendering techniques* to transform digital media such as images and videos "in a smart way". We want to focus on building a software library that can be deployed on mobile devices providing the system base for applications that help users to handle crucial contents with respect to privacy (e.g., blurring faces of depicted persons, "cartoonifying" videos) and information density (e.g., shortening video parts with low visual dynamics). We also aim at a software architecture that supports *SaaS solutions by a composition of analysis, processing, and rendering services*.

Topics include but are not limited to:

1. **Real-time Streaming Protocols:** How to support input and output of streamed contents from web services such as Youtube or Vimeo as well as IP cameras?
2. **Service-based Architecture:** How to build an appropriate service-based architecture? Specifically, this comprises the streaming, processing, caching and provisioning of image data.
3. **Web-based Graphical User Interfaces:** How can users view results and simultaneously change the video processing pipeline and the respective parameters interactively with a standard web browser?
4. **Interfaces to Mobile Applications:** How to connect mobile applications to video processing services, e.g., to process camera contents such as images or videos?

The topics are embedded into our current research and software activities at the computer graphics systems group. This master project is suited to get in touch with a rapidly growing research field and to provide a base for further research for a master thesis or doctoral thesis. In addition, the master project offers jobs as student assistant at HPI or software developer at our research partner tag2me (www.tag2me.de)

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