

Master's Thesis

# Low-latency video quality protection over mobile networks

## External Work

Low-latency live video streaming is required in many use cases, such as sports and live broadcasting of events, teleoperation, and many more. Mobile edge computing (MEC) and the real-time protocol (RTP) save significant transmission time over the network. However, due to dynamic network conditions and the lack of data retransmission, video quality may suffer. A smart protection method is required to improve the video quality, while under the constraint of low-latency video streaming.

Your responsibilities:

1. Investigate the error characteristics in various live streaming scenarios over mobile and DSL networks
2. Analyze the impact of loss and jitter on the video quality and Quality of Experience (QoE)
3. Find a solution of low-latency unequal protection of video packets
4. Implement and evaluate the solution

Requirements:

- Knowledge of video codec (H264), video streaming technology (RTP, forward error correction)
- Basic knowledge of mobile networks, video quality assessment, QoE
- Mastering more than one programming language, C++ and Python preferred

We offer:

- Professional and close supervision at the young Munich-based company Smart Mobile Labs
- Hands-on experience of live video streaming over mobile networks in real product platforms
- Opportunities of accessing the state-of-the-art SW development environment: gitlab, docker, AWS cloud
- The innovative power and flexibility of a startup company

**Smart Mobile Labs GmbH** - Founded in 2013, Munich-based Smart Mobile Labs GmbH has set itself the goal of revolutionizing the global market for live video. The vision is to become the worlds most successful moving-picture transmission company in real time.

We are thrilled to set new standards in real-time transmission. Our team is made up of young talents and experienced managers. We combine our knowledge in live experience creation with the motivation to always give our customers a head start in no matter what business area.

## Advisors

Markus Hofbauer