

At the research group **Intelligent Networks** of **TU Berlin**, which is part of **Deutsche Telekom Laboratories**, there is an opening for a

## Master's Thesis (Master- / Bachelor- / Diplomarbeit)

on the following topic:

# Evaluation of Resend Mechanisms and Implementation in IPTV Quality Estimation Metrics

### Topic Description

With provisioning of broadband access for mass market, even in wireless and mobile networks, multimedia content, especially real-time streaming of high-quality audio and video, is extensively viewed and exchanged over the Internet. Quality of Experience (QoE) aspects, describing the service quality perceived by the user, are vital factors in ensuring customer satisfaction in today's network services. Creating frameworks for accessing quality degradations in streamed video currently is investigated as a complex multi-layered research topic, involving network traffic load, codec functions and measures of user perception of video quality.

Within this area, the thesis will focus on the packetized transmission of TV content; In IPTV, encoded video and audio data is encapsulated in packets which can get lost (packet loss) in phases of overload or due to transmission failures. In order to compensate packet loss, an IPTV solution will implement a resend mechanism that requests lost packets for a limited amount of time. If a packet cannot be resent within a given time frame, the packet is considered to be lost and causes visual impairments in the decoded image. These impairments will lower the Quality of Experience. Thus, for a model of IPTV quality, the effects of the resend mechanism have to be taken into account.

### Concrete Tasks

- Literature survey on related methods
- Extension of a preliminary study on the effects of resend and inclusion in the ongoing work
- Implementation into an existing statistical framework for predicting IPTV quality
- Evaluation of the implemented scheme

### Requirements

- Studies in computer science, engineering or related fields
- Knowledge in statistical and statistical modeling
- Programming skills

### Contact

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