

Preface

Modern IP-based networks and video communication solutions (VVoIP) offer the opportunity to easily communicate and share moments with family and friends on the one hand and to remotely work with colleagues by replacing physical meetings on the other hand. Although, the advantages of videotelephony over speech-only telephony seem to be obvious, videotelephony has not quite replaced it notably due to both human and technical factors. Poor-delivered technical quality or a low level of social presence constitute such limitations. Therefore, there is a need to develop a comprehensive model to evaluate and instrumentally predict the audiovisual quality as perceived by the user. Particularly, quality aspects are crucial when it comes to mobile usage with limited bandwidth, signal processing capabilities, or rendering technologies.

The current technological limitations in terms of signal compression and network transmission lead to various types of artefacts impairing the transmitted audiovisual signal in a time-varying manner. These degradations tend to impair the communication process including the conversation structure and the semantic flow of the conversation such as misunderstandings or interruptions. In turn, the very interactive nature of real-time conversation influences the quality perception and requires to be accounted for when predicting the audiovisual call quality.

This book addresses the challenge of modeling the conversational audiovisual quality in the context of videotelephony. In particular, it aims at extending the current framework for the parametric prediction of audiovisual call quality. Three main aspects of the quality perception of a videotelephony call are covered, namely the assessment of the single audio and video modalities in an interactive context; the integration of these single qualities into an overall audiovisual quality and finally, the integration over time of these momentary quality judgements in order to get a quality estimate of an entire video call. The work presented in this book results from my doctoral research at the Quality and Usability Lab of the Technische Universität Berlin.

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