Association for Information Systems
AIS Electronic Library (AISeL)

AMCIS 2005 Proceedings

Americas Conference on Information Systems (AMCIS)

2005

Designing Multimedia Quality-based Advanced Videoconferencing Applications for Telemedicine over the Internet

Bengisu Tulu
Claremont Graduate University, bengisu.tulu@cgu.edu

Follow this and additional works at: http://aisel.aisnet.org/amcis2005

Designing Multimedia Quality-based Advanced Videoconferencing Applications for Telemedicine over the Internet

Bengisu Tulu
Claremont Graduate University
bengisu.tulu@cgu.edu

ABSTRACT

Telemedicine and related healthcare technologies aim to provide efficient healthcare to improve the well being of patients and bring medical expertise at a lower cost to people who are geographically separated. This field has evolved over the past thirty years and today most telemedicine applications still use expensive leased telecommunication circuits to provide secured reliable connections. With the ubiquity of the Internet, it is now possible to deliver healthcare through Internet-based telemedicine applications to a wider population. However, the unreliable connection properties of packet-based systems and their vulnerability to various impairments that can occur at the physical, network, and application levels hamper the quality of Internet-based telemedicine applications. This research developed a taxonomy that identifies several key telemedicine dimensions to help patients, providers and program administrators understand the effort. The next phases of the study will create new objective/subjective multimedia quality models exclusively for telemedicine over the Internet using an experimental design over an emulated testbed. These models will be developed for telediagnosis in ophthalmology and mental health with extensive experiments using real-world telemedicine multimedia sessions obtained from the Regenstrief Institute for Health Care and VA. Finally, an intelligent videoconferencing software will be developed with real-time quality feedback functionality based on the quality models developed during this study. This new artifact will help practitioners in the field to pursue telemedicine confidently with the knowledge of real-time quality conditions under which they operate.