



Calcutta Chapter

&

CMATER PROJECT, CSE Dept, Jadavpur University

ANNOUNCES

IEEE LECTURE MEETING

A lecture meeting, organized by the Calcutta Chapter of IEEE Communications Society, in collaboration with the CMATER Project of Computer Science & Engineering Department, Jadavpur University, will be held on July 28, 2006 (details below). All interested persons are welcome to attend.

Venue: CAMATER Lecture Room, (2nd floor), Room # T-3-11,
Computer Science & Engg (CSE) Department, Jadavpur University

Date: 28th July (Friday)

Time: 3:00 – 4:00 PM

Internet-based Telemedicine: From Theory to Real-World Practice

Dr. Samir Chatterjee

Director, Network Convergence Laboratory & Associate Professor, School of Information System & Technology
Claremont Graduate University, Claremont, CA 91711

Abstract- Telemedicine and related healthcare technologies aim to provide efficient health services to improve the well being of patients and bring medical expertise at a lower cost to individuals who are geographically separated by distance. Today we are facing difficulties in disseminating medical knowledge fast enough and providing medical expertise to patients in poor areas. The current technological and financial requirements to provide telemedicine services make it even more difficult for poor areas to adopt these technologies. On the other hand, the low cost and ubiquity of the Internet can help deliver healthcare to a wider population through smart Internet-based applications. But the unreliable connection properties of packet-based systems and their vulnerability to various impairments that affect the physical, network, and application layers hamper the quality of Internet-based telemedicine applications. In this talk, I will present a detailed taxonomy of telemedicine to better understand the various dimensions that impact it. Then I will present the relationship between objective and subjective quality measures obtained through empirical investigations, as well as clinical decision making capability that is affected by the impairments that occur during the transmission of video over the Internet. Existing quality measures were tested on degraded videos generated over an emulated Internet testbed using NISTNet. The original telemedicine video sequence selected for the experiments was a telediagnosis case in ophthalmology (this is a video recording of a general eye examination conducted by a physician from a remote location) obtained from the Regenstrief Institute for Health Care. Finally the design of a software tool will be presented that takes these quality metrics into account and presents a better clinical decision-support system for medical practitioners. This tool will be soon deployed in the Tsunami affected region through partnership with ITU-D e-Health initiatives and gather real-world use data to further improve the tool.

Samir Chatterjee (Samir.chatterjee@cgu.edu) is an Associate Professor in the School of Information Systems & Technology and Founding Director of the Network Convergence Laboratory at Claremont Graduate University, California. Prior to that, he taught at the J Mack Robinson College of Business, Georgia State University, in Atlanta. His research interests are mainly in the areas of Next-Generation Networking, Voice and Video over IP, and Network Security. Currently he is exploring fundamental challenges in designing secured IT-based systems to be used in application fields such as healthcare information systems, P2P computing, ad hoc collaboration and bioinformatics. He has published over 75 articles in respected scholarly journals and refereed conferences including *IEEE Network*, *IEEE J. on Selected Areas in Communications*, *Journal of Information Technology & Health-care Management*, *Communications of the ACM*, *Computer Networks*, *Information Systems Frontiers*, *Computer Communication*, *IEEE IT Professional*, *ACM CCR*, *Communications of AIS*, *Journal of Internet Technology* etc. He has actively contributed towards designing middleware for multimedia within Internet2 which led to the establishment of the ITU-T standard called H.350. He is principal investigator on several NSF grants and has received funding from numerous private corporations for his research.