**Graduate Seminar (EEL 6936)**
**Department of Electrical Engineering**
**http://ee.eng.usf.edu/Grad_Seminar**

# Dr. Biswanath Mukherjee

Distinguished Professor
Department of Computer Science, University of California Davis

Friday, April 18th, 2014, 3:30-4:30 p.m.
Engineering Building B (ENB) Room 118

# Network Adaptability from Disaster Disruptions and Cascading Failures

## Abstract

Recent disasters such as Hurricane Sandy demonstrate that our network infrastructures need to be better prepared to survive from such events. Employing techniques such as *risk-aware provisioning, dynamic re-provisioning, multipath routing,* and *data replication*, our methods perform the following: (1) *Normal Disaster Preparedness* (by accounting for risk of disasters in different parts of the infrastructure); (2) *Enhanced Disaster Preparedness* (under more-accurate intelligence on potential disasters); and (3) *Post-Disaster Service Survivability* (after a disaster, if full bandwidth cannot be guaranteed, the services should be provided with as much bandwidth as possible (*degraded services*)). While traditional approaches focus on protecting links and nodes (routers, switches, etc.) to provide "network connectivity", the shifting paradigm towards cloud computing/storage require that we protect the data/content, so we develop the concept of *"content connectivity"* and methods to achieve this. Thus, we can significantly improve a telecom backbone network's adaptability to survive disaster disruptions.

## Biography

Dr. Biswanath (Bis) Mukherjee is a Distinguished Professor at University of California, Davis, where was also Chairman of Computer Science from 1997-2000. He received the BTech degree from Indian Institute of Technology, Kharagpur (1980) and Ph.D. degree from University of Washington, Seattle (1987). He was General Co-Chair of *IEEE/OSA Optical Fiber Communications* (OFC) in 2011, Technical Program Co-Chair of *IEEE/OSA OFC 2009*, and Technical Program Chair of *IEEE INFOCOM 1996*. He is currently the Editor of Springer's Optical Networks Book Series. He has also served on eight journal editorial boards, most notably *IEEE/ACM Transactions on Networking* and *IEEE Network*. In addition, he has guest edited special issues of *Proceedings of the IEEE*, *IEEE/OSA Journal of Lightwave Technology*, *IEEE Journal on Selected Areas in Communications*, and *IEEE Communications*. He has supervised 56 Ph.D. degrees to completion and currently mentors 17 advisees, mainly Ph.D. students. He is co-winner of the Optical Networking Symposium Best Paper Awards at *IEEE Globecom 2007* and *IEEE Globecom 22008*. He is also author of the graduate-level textbook *Optical WDM Networks* (Springer, January 2006). Dr. Mukherjee served a 5-year term on Board of Directors of IPLocks, a Silicon Valley startup company, and has also served on technical advisory boards of several startup companies, including Teknovus (acquired by Broadcom). He is an IEEE Fellow.