JUN ZHUANG

**Title:**
Strategic Interactions in Disaster Preparedness and Relief in the Face of Man-Made and Natural Disasters

**Abstract:**
Society is faced with a growing amount of property damage and casualties from man-made and natural disasters. For example, the estimated insurance cost of disasters was estimated, before the Gulf of Mexico Oil Spill, to be as great as $110 billion worldwide in 2010 alone. Developing societal resilience to those disasters is critical but challenging. In particular, societal resilience is jointly determined by federal and local governments, private and non-profit sectors, and private citizens.

We will present a sequence of games among players such as federal, local, and foreign governments, private citizens, and adaptive adversaries. In particular, the governments and private citizens seek to protect lives, property, and critical infrastructure from both adaptive terrorists and non-adaptive natural disasters. The federal government can provide grants to local governments and foreign aid to foreign governments to protect against both natural and man-made disasters; and all levels of government can provide pre-disaster preparation and post-disaster relief to private citizens. Private citizens can also, of course, make their own investments. The tradeoffs between protecting against man-made and natural disasters, specifically between preparedness and relief, efficiency and equity, and between private and public investment, will be discussed.

**Bio:**
Jun Zhuang is an Assistant Professor of Industrial and Systems Engineering at the University at Buffalo, The State University of New York. He has been a faculty member at SUNY Buffalo since he obtained his Ph.D. in summer 2008 from the University of Wisconsin-Madison. Dr. Zhuang's long-term research goal is to integrate operations research and game theory to better prepare for, mitigate, and manage both natural and man-made hazards. Other areas of interests include health care, transportation, logistics and supply chain management, and sustainability.