# UB2020 Strategic Strength on Extreme Events: Mitigation and Response

# Spring 2009 Extreme Events Faculty Mixer

**Center for the Arts Atrium, North Campus | Thursday, March 26, 2009**

## Agenda

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| 3:15 pm | Registration and Refreshments |
| 3:30-3:40 pm | **Welcome and Update on UB2020 Strategic Strength on Extreme Events**<br>**Harvey Stenger** |
| 3:40-3:50 pm | **The Future Vision of MCEER**<br>**Andre Filiatrault** |
| 3:50-4:30 pm | **Newly-Hired Faculty Research Presentations**<br>**Lisa Butler**, *Social Work*<br>**Beata Csatho**, *Geology*<br>**JiYoung Park**, *Urban and Regional Planning*<br>**Pavani Ram**, *Social and Preventive Medicine*<br>**Adel Sadek**, *Civil, Structural and Environmental Engineering*<br>**Greg Valentine**, *Geology*<br>**Bob Viswanathan**, *Operations Management and Strategy*<br>**Qian Wang**, *Civil, Structural and Environmental Engineering*<br>**Jun Zhuang**, *Industrial and Systems Engineering* |
| 4:30-4:45 pm | Break |
| 4:45-5:15 pm | **Small group discussions on research topics**<br>**All** |
| 5:15-5:45 pm | **Small group discussions by research process and funding**<br>**All** |
| 5:45-6:00 pm | **Summary and Next Steps** |

## Profiles of New Extreme Events Faculty

**Lisa D. Butler**
Associate Professor
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Dr. Butler's background includes research in traumatic stress and other psychosocial outcomes in a number of populations. Her extreme events interests include the study of factors associated with traumatic stress, resilience, and/or posttraumatic growth outcomes following traumatic events, such as terrorist acts, as well as developing new research examining the nature of traumatic stress reactions in the context of living under threat.

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**Beata Csatho**
Associate Professor
Geology
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Remote sensing and data fusion technologies are crucial for improving our understanding of the physical processes involved in extreme events, for assessing their larger-area impacts, and for creating a vital area of interface between hazard sciences and cyberinfrastructure. Dr. Csatho's research is related to the understanding of the complex dynamics of the Earth's system and its interaction with the human environment. To process, merge and analyze data sets from multiple sources, she adopts methodologies from geophysics, remote sensing, photogrammetry, geodesy, spatial statistics, GIS, visualization, digital image processing, pattern recognition, and data fusion. Her current research includes the development of image understanding, registration and data fusion methods for rapid mapping and monitoring of urban environments, the development of airborne and satellite laser mapping methods for investigating geodynamics, environmental changes, ice sheet mass balance and glacier dynamics; and the application of remote sensing, GPS and photogrammetry for characterizing of ice flow, volcanic geomorphology and crustal deformation.

**JiYoung Park**
Assistant Professor
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Professor JiYoung Park developed National Interstate Economic Model (NIEMO), a spatially disaggregated operational MRIO (Multiregional Input-Output) model of the 50 states and the District of Columbia. The NIEMO is used to analyze economic impacts resulting from natural disasters such as Hurricane Katrina and hypothetical terrorist attacks. He extends NIEMO by including (1) transportation and multi-modal system, (2) international countries, (3) temporal extension, (4) price elasticity of demand, (5) HAZUS software, and (6) game theory. The extensions allow one to estimate the economic impacts spilled over regionally and periodically from important infrastructure disruptions in the U.S. including resilient effects. He is also consulting local governments, e.g. Southern California Government Association (SCAG), for constructing local economic and transportation models which forecast the future of the region's economic indices and transportation patterns if an extreme event occurs in a local region.

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**Pavani Ram**
Assistant Professor
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Dr. Pavani K. Ram completed her medical training at the Mount Sinai School of Medicine and a residency in internal medicine at the Washington University School of Medicine. She began her career in public health as an Epidemic Intelligence Service Officer at the Centers for Disease Control and Prevention. Until 2005, she served as a medical epidemiologist at CDC. Pavani has worked on numerous outbreak investigations, disease burden and risk factor investigations, diagnostic test evaluations, and disease surveillance in complex emergencies. Her primary area of interest is the epidemiology, prevention, and treatment of diarrheal diseases and acute respiratory infections, the two leading causes of death among young children in low-income countries. Pavani worked with colleagues from UNICEF, WHO, and the Indonesia Ministry of Health following the tsunami in Aceh, Indonesia. She has also led a study to investigate household water treatment following Hurricane Rita in southwestern Louisiana. Currently, she is the principal investigator of a randomized controlled trial to assess the impact of handwashing with soap on prevention of household transmission of influenza in a resource-poor setting, a study that is expected to inform pandemic preparedness efforts in low- and middle- income countries globally.

## Profiles of New Extreme Events Faculty

**Adel W. Sadek**
Associate Professor
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Dr. Sadek is the recipient of the Milton Pikarsky Award for the best dissertation in the field of Transportation Science and Technology, and of a National Science Foundation (NSF) CAREER award. His research interests span a wide range of topics including transportation systems modeling and simulation, intelligent transportation systems, artificial intelligence applications in transportation, weather impact on transportation operations, traffic engineering, transportation planning, and infrastructure management. Dr. Sadek is co-author of two Transportation textbooks, *Fundamentals of Intelligent Transportation Systems Planning,* published by Artech House, and *Transportation Infrastructure Engineering – A Multimodal Integration,* published by Thomson Engineering. He is a member of the Transportation Research Board (TRB) committee on Artificial Intelligence and Advanced Computing Applications, and the committee on Surface Transportation Weather. He is also a member of the Advanced Technologies committee of the Transportation and Development Institute (T&DI) of the American Society of Civil Engineers (ASCE).

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**Greg A. Valentine**
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Greg Valentine joined UB in August, 2008, as Professor of Geology, and will become Director of the Center for GeoHazards Studies in July 2009. Dr. Valentine earned a B.S. in Geological Engineering at New Mexico Institute of Mining and Technology, and a Ph.D. in Geological Sciences at University of California-Santa Barbara. His research interests include field and modeling studies of volcanic processes and risk. Prior to coming to UB, Dr. Valentine was on the research staff at Los Alamos National Laboratory for 20 years, and was Group Leader for Hydrology, Geochemistry, and Geology from 1998-2008. He led a multidisciplinary team addressing volcanic risk to the proposed radioactive waste repository in Yucca Mountain, Nevada, as well as other research efforts including one that sought to link urban infrastructure science with environmental sciences. At UB, Dr. Valentine's research involves volcanic fields, pyroclastic flows, and volcanic risk. He is a co-investigator on NSF proposals related to graduate programs in Extreme Events, and is leading an effort to develop a virtual organization to promote global collaboration in volcanic risk mitigation.

**Bob (Sridhar) Viswanathan**
Assistant Professor
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Dr. Viswanathan's research examines the motivations for managers to perform risk management activities for their supply chain relationships. Additionally, this research examines the management of known risks as compared to general mechanisms that managers use to address unanticipated problems.

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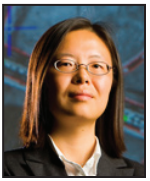

Dr. Qian Wang earned her Ph.D. in Transportation Engineering from Rensselaer Polytechnic Institute in 2008. Her major research interests include transportation planning, freight system modeling, and transportation economics. Dr Wang's professional practices cover a wide spectrum of transportation fields, including travel demand modeling, behavioral choice modeling, congestion pricing, transportation risk management, Intelligent Transportation Systems, traffic operations and railroad engineering. Her long-term career goal is to integrate economic and behavioral principles into transportation modeling and policy making, to maintain efficient, safe, secure and sustainable transportation systems.

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**Jun Zhuang**
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and Co-Director, Research Institute for Safety & Security in Transportation
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Dr. Zhuang's current research interests include operations research, decision and risk analysis, stochastic dynamic programming, game theory, and their applications on homeland security, computer network security, transportation, and supply chain management. Dr. Zhuang's research has been supported by the Department of Homeland Security through the Center for Risk and Economic Analysis of Terrorism Events (CREATE) and the Center for Human Performance and Risk Analysis (CHPRA).

## Participants

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## Small Group Discussion Topics

### Round 1, by research topic

A. Geological Hazards: Interdisciplinary, Social Science, and Human Factors Approaches

B. Infrastructure (especially Transportation) and Economy

C. Uncertainty, Ontology, and Risk

D. Human Factors and Incident Dynamics

### Round 2, by research process and funding

A. Collaboration -- how to get it going, what to do next

B. Upcoming large funding opportunities -- can your ideas fit?

## Organizing Committee

**Harvey Stenger**
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Acting Chair, Extreme Events Faculty Advisory Committee

**Steven Dubovsky**
Professor and Chair, Psychiatry, School of Medicine

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## Notes

University at Buffalo
The State University of New York