Engineering Enhancements in Health Systems

Multidisciplinary Approach Addresses Challenges

UB's ISE Department is making a difference in health system quality and effectiveness through a multidisciplinary research approach that cuts across traditional areas in ISE to include service systems, human factors, and operations research.

Our research focuses on a diverse set of challenges in health and health systems including: modeling care delivery processes in hospitals; developing improved user interfaces for health IT systems; modeling influences in online health networks; optimizing systems of organ transplants; characterizing the performance of those with functional limitations to support better design of buildings and public transportation; analyzing medical error mitigation strategies in terms of their effectiveness and sustainability; and developing injury risk reduction techniques, particularly for disabled, obese, and older working populations.

Faculty have engaged local, regional, and national health care partners to leverage expertise and make an impact. The research is supported by a variety of sources including the Agency for Healthcare Research and Quality, National Institute for Occupational Safety and Health, National Institute for Disability and Rehabilitation Research, United States Access Board, and the New York State Department of Health.

Recent HF Publications


New Faculty Member in HF

Lora Cavuoto joined the UB ISE department as an Assistant Professor this August. She is the director of the Ergonomics and Biomechanics Lab. Dr. Cavuoto's work in human factors has focused on occupational biomechanics and the main and interactive effects of aging and obesity. Her current research considers the impact of the changing workforce demographics on endurance and muscle fatigue. The results of this work were recently published in *Applied Ergonomics*. The outcomes of this research can facilitate the development of more inclusive ergonomics guidelines to control injury risk and contribute to interventions to reduce physical risk factor exposure.

Dr. Cavuoto has also worked on projects evaluating the effectiveness of multidisciplinary pain treatment and developing guidelines for an accessible smart phone user interface design for individuals with visual and physical impairments. Her research interests include industrial ergonomics, biomechanics, occupational safety and health, and designing for the obese and older populations.

Dr. Cavuoto received her Ph.D. in Industrial and Systems Engineering from Virginia Tech. She earned both a M.S. in Occupational Ergonomics and Safety and a B.S. in Biomedical Engineering from the University of Miami.

Contact her at loracavu@buffalo.edu.

Recent HF Ph.D. Dissertations


Research Assistantships and Fellowships available for Fall 2013

Alumni Profile

Priyadarshini Pennathur, Ph.D. 2010 Faculty, Department of Mechanical and Industrial Engineering University of Iowa

Priyadarshini Pennathur (Priya) graduated from ISE @ UB in September 2010, after gaining a wealth of research experience from Dr. Ann Bisantz, her PhD advisor and mentor. She then completed her post-doctoral training in patient safety at Johns Hopkins. During her post-doctoral training, she worked on problems in patient handoffs, discharge planning, and medical error. Since June 2012, she is a faculty in the Department of Mechanical and Industrial Engineering at University of Iowa. Dr. Pennathur received a "Pathway to Independence" K99/R00 award from the National Library of Medicine (NLM) in September 2012. Her research is in modeling the discharge processes in hospitals, with a view to understanding how healthcare providers and staff create and use information for patient discharge. Her findings will lead to new designs for health information systems technology used in hospitals. She collaborates with the University of Iowa Hospitals and Clinics, and the VA hospitals in Iowa. She is also associated with the National Center for Human Factors and Ergonomics. She is a member of the Aging Mind and Brain Initiative at University of Iowa, and will be researching cognitive processes in older adults. She is teaching human factors engineering for undergraduates in her first semester, and is thoroughly enjoying her classroom experiences. Dr. Pennathur fondly remembers her UB days as she begins her academic career, and reflects on her inspiration, motivation and encouragement from all the faculty at ISE, especially, Dr. Ann Bisantz. Thank you Human Factors @UB! Contact Priya at priyadarshini-pennathur@uiowa.edu