William Wallace

Name: William Wallace

Title: Yamada Corporation Professor

Department Civil and Environmental Engineering Industrial and Systems Engineering

School Architecture

Center Center for Infrastructure, Transportation, and the Environment (CITE) Network Science and Technology Center (NeST)

Website: http://www.dses.rpi.edu/people/faculty.cfm?facultyID=wallaw

Bio His research interests are generally in:

Analytical Approaches to Emergency Management: Research focuses on the development of models for disaster management, including transportation of hazardous materials. Investigating the development of Decision logic for crisis management.

The Process of Modeling: The acquiring of an expert's judgment and experience and its subsequent codification in a form amenable to representation by a complex model is the objective of this research. Present work is concerned with (i) designing an automated means of support for this process, (ii) the use of visual, both 2D and 3D, and (iii) studying ways and acquiring knowledge about the usual or exceptional occurrence.

On-going research includes Decision Support for Group Improvisation; the development and assessment of a blackboard architecture for supporting improvisation by emergency response teams supported by NSF, Visualization and the Process of Modeling (with Professor Willemain) supported by NSF; Trust and Knowledge Management: The Develop and Implementation of Graph-Theoretic Models for the Assessment of Trust in Sources of Knowledge -- supported by NSF. The Impact of the World Trade Center Attack on Critical Infrastructure Interdependencies, supported by NSF, and Wireless Advanced Travelers Information Systems, supported by FHA and NYSDoT.

Details

Funding Agency

NSF

Signature\_Thrust

Computation & Information Technology

Keywords

social networking

social media

ethics

emergency management

decision logics

crisis management

Education Ph.D., Rensselaer Polytechnic Institute

Recognitions:

Yamada Corporation Professor at Rensselaer Polytechnic Institute

Excellence in Research Award, SoE

INFORMS President's Award

Fellow, IEEE

DSES Faculty Award for Excellence

IEEE Third Millennium Medal, Engineering Management Society

Best Student Paper (with R.G. Arunasalam, J.T. Richie, W. Regan, and O. Gur-Ali), Portland International Conference on Management and Engineering and Technology

Del and Ruth Karger Dissertation Prize, DSES

International Emergency Management and Engineering Conference Award

Horwood Critique Prize for Outstanding Paper, Urban and Regional Information Systems Association Conference

Outstanding Case Award, Rand Graduate Institute/Duke University Public Policy Curricular Materials Development Program

Recent relevant publications

Traffic Management for Planned Special Events Using Traffic Mircosimulation Modeling and Tabletop Exercises (with J. Wojtowicz) Journal of Transportation Safety and Security, Vol. 2, No. 2, pp 102-121.

Probes as Path Seekers (with A. Demers, G. F. List, J. Wojtowicz and E. Lee) Transportation Research Record, No. 1944, of the Transportation Research Board (TRB), Washington, DC, September 2006.

Approximate Nonmyopic Sensor Selection Via Submodularity and Partitioning (with W. Liao and Q. Li), IEEE Transactions Systems, Man, and Cybernetics Part A, 39(4) 782-794, 2009.

Network Flow Approaches for Analyzing and Managing Disruptions to Interdependent Infrastructure Systems (with E.E. Lee and J Mitchell), Wiley Handbook of Science and Technology for Homeland Security. J. Voeller (ed) (forthcoming).

Logic-based Multi-Objective Optimization for Restoration Planning (with J. Gong, E. E. Lee, and J. Mitchell), In Optimization and Logistics Challenges in the Enterprise. W. A. Chaovalitwongse, K.C. Furman and P.M. Pardalos, eds, Springer (forthcoming).

Restoration of Services in Interdependent Infrastructure Systems: A Network Flows Approach

(with J. Mitchell and E.E. Lee). IEEE Transactions on Systems, Man, and Cybernetics, Part C, 37(6) 1303-1317, 2007

Impacts of the 2001 World Trade Center Attack on New York City Critical Infrastructures (with D. Mendonca). J Infrastructure Systems: ACSE, 12(4) 260-270, December 2006.

VISAGE: A Virtual Laboratory for Simulation and Analysis of Social Group Evolution (with H.C. Chen, M. Francisco, M. Goldberg and M. Magdon-Ismail), ACM Transactions on Autonomous and Adaptive Systems (TAAS), Vol., 3, Issue 3, 1-35, August 2008.

Micro-Simulation of Diffusion of Warnings ( with C. Hui, M.Goldberg, and M. Magdon-Ismail). In: Proceedings of the 5th International Conference on Information Systems for Crisis Response and Management ISCRAM2008 (Eds. F. Fiedrich and B.Van de Walle), 424 – 430, 2008.

Trust in Digital Information (with K. Kelton and K.R. Fleischmann). J. Amer. Society for Information Science and Technology, 59 (3) 363-374, 2008.

A Cognitive Model of Improvisation in Emergency Management (with D. J. Mendonca), IEEE Transactions on Systems, Man, and Cybernetics, Part A 34(4) 547-556, July 2007.

Managing Disruptions to Critical Interdependent Infrastructures in the Context of the 2001 World Trade Center Attack (with D. Mendonca, E. Lee, J. Mitchell and J. Chow), in Beyond September 11th: An Account of Post-Disaster Research, M.F. Myers (Ed.), Natural Hazards and Applications Information Center, University of Colorado, Boulder, CO, 2003.