Modeling and Deciding: What's the nature of the relationship?

Joseph Heim
Research Scientist/Engineer
Department of Industrial and Systems Engineering
University of Washington

Abstract: In this seminar we will review the roles of models, modelers, analysts and "deciders" in complex systems. With this as a background, we will discuss our recent research and development efforts to create tools that improve the decision-making performance of organizations. In particular, we will examine two healthcare situations for which we have developed DES-based modeling environments that support design and analysis by *medical* domain experts: multifunction clinical laboratories; and real-time monitoring systems for pediatric asthma patient populations. Although the efficient construction of DES models is a primary motivation of our work, we find that significant value comes from broadening the participation of healthcare organization in the full modeling-and-deciding lifecycle.

Bio: Joseph Heim is a Research Scientist/Engineer in the Department of Industrial and Systems Engineering (ISE) at the University of Washington in Seattle, where his current research focus is health systems engineering. His undergraduate degree is in mechanical engineering with masters degrees in computer and industrial engineering. After completing his PhD in industrial engineering at Purdue University, Joe was the J Herbert Holloman fellow at the US National Academy of Engineering in Washington, DC. There he investigated potential roles for federal support of manufacturing technology. For most of his career, split equally between academia and industry, he has focused on design, analysis and management of complex systems: healthcare; product manufacturing; and software/product development. The common thread in all of his work, both academic and commercial, has been the use of systems engineering and modeling principles to guide, coordinate and inform projects and decisions. Joe currently teaches healthcare analytics for the University of Washington's Master of Health Administration program and supply chain management in the UW ISE department; he is a co-PI for the NSF-funded UW CHOT (Center for Health Organization Transformation).