

Understanding Physician's Decision Making in Trauma Centers

Policarpos deMattos, Eui Park and Daniel Miller
North Carolina A&T State University
USA

Abstract

This paper examines complex decision-making processes of emergency physicians while facing trauma code situations. It discusses the impact of complexity on the medical team involved in the trauma event. Despite all recent advances in healthcare technologies, trauma events makes decision-making and problem-solving processes complex. It requires vital solutions during the critical periods of a trauma situation. Complexity science theories might provide an approach to understand decision-making in this complex environment of a trauma center. This paper addresses how decision-making processes are accomplished in trauma centers and the importance of intuition and judgment on trauma decision making. It developed a model of decision-making process for trauma events that uses Convolution and Deconvolution operators to study real-time observed trauma data for decision-making processes under stress. The model was aimed at providing emergency physicians with the capability to learn more about their own behaviors and those of the environment. The objective was to explain physicians' decision-making processes during actual trauma events while under the stress of time constraints, lack of data, and a dynamic system. The research addresses important operations that describe the behavior of a dynamic system resulting from stress placed on the physician's decision-making processes by the conditions of the environment.

Biography

Eui H. Park, Professor of the Department of Industrial and Systems Engineering at North Carolina A&T State University, received his Ph.D. from Mississippi State University in 1983. He had worked for Boeing Commercial Airplane Company as a senior engineer for four years from 1978, and returned to school for his doctorate with a Boeing Fellowship. Upon completion of his Ph.D., he joined North Carolina A&T State University and has since initiated and developed a successful interdisciplinary manufacturing program at the university as the Director of Manufacturing Initiatives. He is the founder of teaching factory, Piedmont Triad Center for Advanced Manufacturing. Dr. Park was also the Chairperson of the Industrial and Systems Engineering Department for 16 years from July 1990. He has been an IIE (Institute of Industrial Engineers) Fellow since 2000. Dr. Park has also initiated and developed a successful Human-Machine Systems Engineering program at NC A&T and has also conducted STEM outreach programs, the Para-Research Program, Partnership in Education and Research, REU, and RET, for the past 16 years. His fields of research are Human-Machine Systems Engineering and Quality Assurance. He has been a principle investigator in 24 awarded funded research projects totaling over \$12 million in the past twelve] years.