

FOREWORD

This special issue of the Industrial and Systems Engineering Review once again showcases the top papers from the annual General Donald R. Keith memorial capstone conference at the United States Military Academy in West Point, NY. After consideration of over 40 academic papers, the eight listed in this issue were selected for publication in this journal. Topics addressed in the papers span a wide spectrum, however the distinguishing aspects of each paper included a common trend; each of these papers clearly implemented some aspect of systems or industrial engineering underpinned by thoughtful analysis. The papers focus on three general bodies of knowledge: systems engineering, modeling and simulation, and system dynamics modeling.

Systems engineering topics included two unique contributions. The work of Byers et. al examined the trades between weapon weight and weapon lethality. Bares et. al. examined computing and storage needs of a simulation-intense analytical organization, considering the processing, storage, and growth that such an organization would need to consider as part of their IT solution.

Three papers created unique contributions primarily through modeling and simulation studies. Grubaugh et al. explored anomaly detection in categorical data, a notoriously difficult problem domain. Bieger et al. used discrete event simulation to analyze rail yard operations in support of military deployments. Kumar and Mittal analyzed the feasibility and benefits of alternative organizational structures to support cyber defense, primarily using a value modeling approach.

Lastly, applied system dynamics modeling and research produced several outstanding papers, primarily across social science problems. Led by the extensive advising efforts of Jillian Wisniewski, three of her students contributed notably. Ferrer and Wisniewski used system dynamics to understand the growth of Boko Haram over the course of the last decade. Riedlinger and Wisniewski applied system dynamics to better understand the replication of mass killings across the United States. Lastly, Provaznik and Wisniewski explored the diffusion of news and information using system dynamics, analyzing important social problems created by echo chambers for ideologies.

Please join me in congratulating our authors, especially the young undergraduate scholars that provided the primary intellectual efforts that created the contents of this issue.

COL Paul F. Evangelista, PhD, PE
Director, Engineering Management Program
Department of Systems Engineering,
United States Military Academy
Mahan Hall, Bldg 752, Room 420
West Point, NY 10996, USA
paul.evangelista@westpoint.edu