

FOREWORD

This special issue of the Industrial and Systems Engineering Review highlights top papers from the 2019 annual General Donald R. Keith memorial capstone conference held at the United States Military Academy in West Point, NY. Following careful review of 48 academic paper submissions, eight were selected for publication in this journal. Each paper incorporated features of systems or industrial engineering and presented detailed and reflective analysis in the topic. Three general bodies of knowledge in the papers include: systems engineering and decision analysis, modeling and simulation, and artificial intelligence

Systems Engineering and Decision Analysis topics included three unique contributions. The work of Flanick et al. examined adaptability in Hyper-Enabled Operator systems and recommended how each technology might address capability gaps for special operations forces. Wilby et al. employed a scalable predictive statistical model for decision support to significant work package prioritization for U.S. Army Corps of Engineers nationally significant inland waterway infrastructure. Contributions by Shi et al. employed value focused thinking and a robust cost model to enable decision quality for PM Cargo CH-47 technologies.

Modeling and Simulation works also included three unique contributions. Recognized as ‘best paper’ at the 2019 conference, work by Cooley et al. developed a senior leader engagement model using sparse K-means clustering techniques to greatly improve the planning and execution for AFRICOM leadership. Lovell et al. employed robust military simulation models to evaluate and propose solutions Soldier Search and Target Acquisition protocols. Work by Drake et al. employed vehicle Routing Problem simulation software to enhance United Health Services material handling challenges across NY State thus enabling quality optimization choices.

Finally, two unique contributions in artificial intelligence examined key text mining technologies. Shi et al. employed text mining and Latent Dirichlet Allocation modeling to derive insights through trends and clustering narratives on U.S. Army Officer Evaluation Reports and describe success. Similarly, text mining techniques by Senft et al. helped to examine and show similarities in success narratives across genders thus providing valuable insights for promotion boards.

Congratulation to the 2019 undergraduate scholars and all authors who provided valuable contributions through thoughtful and steadfast intellectual efforts to their fields of study!

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