

FOREWORD

The 2022 special issue of the Industrial and Systems Engineering Review highlights top papers from the 2022 Annual General Donald R. Keith memorial capstone conference held at the United States Military Academy (USMA), West Point, NY on the 28th of April. The conference fully returned to an in-person event while also offering opportunities for judges and observers to remotely participate. Following careful review of fifty-three conference proceeding approved papers, thirteen were selected for publication in this journal. Each of the thirteen papers incorporated features of systems or industrial engineering and presented thoughtful and reflective analysis on each topic and represent nine of ten tracks following peer review and external judging of the research.

Representing the **Systems Design for Defense Applications Track** is the interdisciplinary work by Braun et al. in ‘Quantifying a State’s Reputation in the Strategic Competition and Crisis Wargame’ (Center for Army Analysis sponsorship). The **Systems Design Track** highlighted work by Bulman et al. on ‘Measuring the Return on Investment for AFRICOM’s African Enlistment Soldier Development Efforts’ (U.S. Africa Command sponsorship). Two research efforts were chosen from the **Process Modeling and Analysis Track** including Gee et al.’s work on ‘Toward Industry 4.0 in Surface Mount Technology: Smart Manufacturing in Stencil Printing Operations.’ and Chaim and Kieu with ‘Kaizan for Footprint Reduction and Process Flow Improvement at Great Plains Industries’ (Great Plains Industries sponsorship).

The **Modeling and Simulation for Defense Applications Track** recognized work by Farmer et al. on ‘Predicting Undergraduate RPA Training (URT) Student Performance’ (558th Flying Training Squadron sponsorship) and the **Modeling and Simulation Track** had work by Killian et al. on ‘Improved Modeling of Maintenance for Future Vertical Lift’ (Army Future’s Command, Future of Vertical Lift Cross Functional Team sponsorship). The **Decision Analysis Track** selected Duhart et al. ‘A Normative Methodology for R&D Alignment and Decision Making in the Arctic’ (U.S. Army Corps of Engineer’s Engineer Research and Development Center (ERDC) sponsorship) and from the **General Engineering Track**, Thompson et al. ‘Developing Requirements to Validate Autonomous Ground Vehicle Simulations’ (ERDC’s Information Technology Laboratory sponsorship).

Selections were made from the individual undergraduate work in the **Honors Project and Hollis Award tracks**. Pratt and Dabkowski was selected for work in ‘Analyzing the Integration of MBSE Approaches within the Aerospace Industry according to UTAUT’ under the honors track. Four Hollis Award selections included Budak et al., ‘Analyzing and Evaluating Alternatives for the Bradley Fighting Vehicle Powertrain’, Leehan and Bastian’s research on ‘Geospatial Big Data Analytics for Quality Control of Surveys’, Lee and Mittal’s work on ‘Identifying Potential Supply Chain Bottlenecks with the Ammunition Manufacturing Process for the Optionally Manned Fighting Vehicle’ and Blankenship et al. for work titled ‘An Investigation of Search Algorithms for Aerial Reconnaissance of an Area Target’.

Thank you to all the academic institutional support, project sponsors, supporting faculty, and certainly to the 2022 undergraduate scholars and authors who provided significant contributions through applied research for advancement of their fields of study!

COL James H. Schreiner, PhD, PMP, CPEM
Director, Engineering Management Program
Department of Systems Engineering
james.schreiner@westpoint.edu

Dr. Kenneth W. McDonald, PhD, PE, PMP
Professor of Engineering Management
Department of Systems Engineering
kenneth.mcdonald@westpoint.edu