

Neil E Kester

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EDUCATION:

- Johns Hopkins University (JHU) Masters of Science in Systems Engineering, In progress
- USC Introduction to Data Informatics survey course, November 2016
- Command and General Staff College (CGSC), Fort Belvoir, August 2016 *Honor Graduate
- Center for Army Analysis Introduction to R Statistical Programming Language, October 2015
- Operations Research/Systems Analysis - Military Augmentation Course, November 2014
- Missouri University of Science & Technology (MS&T) Masters of Science in Engineering Management, October 2010
- United States Military Academy (USMA) Bachelors of Science in Civil Engineering, May 2006

PUBLISHED ARTICLES:

- R. Kewley, N. Kester and J. McDonnell, "DEVS Distributed Modeling Framework - A parallel DEVS implementation via microservices," 2016 Symposium on Theory of Modeling and Simulation (TMS-DEVS), Pasadena, CA, 2016, pp. 1-8.
 - This article introduces the Discrete Event System Specification Distributed Modeling Framework (DEVS-DMF) for integrating simulation modes as parallel and distributed microservices. Two simulation implementations of DEVS-DMF discussed in this article include a parallel simulation test case and a combat weapons simulator that assesses the performance of alternative small arms weapons designs.

STUDIES:

UNITED STATES SPECIAL OPERATIONS COMMAND (USSOCOM) OPERATIONAL ASSESSMENTS, USSOCOM

FEBRUARY 2018 - PRESENT

Led a team to conduct operational design and an operational assessment of a complex Combined, Joint, Interagency Operation. The focus of this effort was to develop the framework and collect the information required to better define and structure future operations.

TRANS-REGIONAL ANALYSIS VALIDATION ENVIRONMENT (TRA VEN), USSOCOM

JANUARY 2018 - PRESENT

The TRA VEN is a methodology and tool developed to replicate and automate the workflow required to transform large sets of semi-structured captured enemy material into cleaned, structured, and related data. The output of this tool transformed what had taken analysts days to accomplish into seconds, giving them time to develop more complete understanding.

COMMUNICATIONS INTEROPERABILITY APPRAISAL TABLE (CIRCuIT), CAA**JUNE - DECEMBER 2017**

This study developed a novel approach to collecting, storing, and communicating the U.S. Army's ability to communicate with its Combined, Joint, and Interagency Mission Partners. Structured around the Warfighting Functions and U.S. Army echelons, it connects observations from units operating with mission partners to a structured and searchable database. This allows other operators to learn from those observations and provides a holistic view to senior leaders on what level of interoperability can be expected between two organizations.

FUEL RESUPPLY TO EASTERN EUROPE DISTRIBUTION OVERLAND MODEL (FREEDOM), CAA**AUGUST 2016 - SEPTEMBER 2017**

This study focused on developing a discrete event simulation model that approximated the processes and limitations required to transfer fuel overland to support operations across Europe. The desired output was to understand what level of transportation resources, environmental conditions, and/or physical infrastructure was required to meet the anticipated demand at the correct time and location.

SMALL ARMS AMMUNITION CONFIGURATION STUDY, AMSAA**NOVEMBER 2014 - APRIL 2016**

This critical study, led by the Maneuver Center of Excellence (MCoE), aimed to evaluate the required performance and technical feasibility of the next generation of the Soldier Rifle. This highly collaborative study included engagement from MCoE, AMSAA, TRAC, ARL, ARCIC, ARDEC, NATICK, USMA, and others. To support this, I developed the combat modeling scenarios used to evaluate the system designs and developed data analysis tools to access, analyze, and visualize the modeling output results.

DISCRETE EVENT SYSTEM SPECIFICATION DISTRIBUTED MODELING FRAMEWORK (DEVS-DMF), AMSAA**JULY 2015 - APRIL 2016**

This study, in collaboration with the United States Military Academy's Systems Engineering Department, explored the possibility of deploying models representing individual aspects of a combat simulation model (the act of acquiring a target, the delivery accuracy of a small arms weapon, the effects of that projectile on a target, etc.) remotely in a cloud environment. Executing this in a DEVS environment allows the models to run independently of each other and leverage significantly more computing power than is resident on a local machine. Leveraging frameworks such as these, paired with advanced Design of Experiment techniques, allow analysts to explore the most important regions of the design space.

COLLATERAL DAMAGE ESTIMATION (CDE) PROGRAM, AMSAA**JANUARY 2015 - APRIL 2016**

Under the JTCG/ME (Joint Technical Coordinating Group for Munitions Effectiveness) Program Office, I ran the models and analysis to update CDE tables for new or updated ground to ground munitions. I also participated in the CDE Working Groups to develop modeling improvements that strove to balance the flexibility desired by operators with the risk mitigation measures provided by the CDE methodology.

**ECHELONS ABOVE BRIGADE (EAB) M113 REPLACEMENT ANALYSIS OF ALTERNATIVES, AMSAA
JANUARY 2015 - FEBRUARY 2016**

This study, led by the TRADOC Analysis Center (TRAC), evaluated viable alternatives to the M113 to support Field Artillery and Engineer units at Echelons Above Brigade (EAB). The AMSAA Mobility and Survivability teams evaluated each candidate's performance and provided that feedback to TRAC to combine with their results of combat modeling performance. I provided experiential knowledge on the platforms and requirements specific to the U.S. Army Combat Engineer Military Occupational Specialty (MOS)

PRESENTATIONS:

- "Overland Fuel Distribution Model", Military Operations Research Symposium (MORS), June 2017
 - A talk to describe and demonstrate our approach to the FREEDOM model.
- "Cloud Based Distributed Modeling Framework", Army Operations Research Symposium (AORS), October 2015
 - Presented the approach and value of Distributed Modeling in the context of weapons performance modeling.

PROFESSIONAL QUALIFICATIONS:

- Project Management Professional (PMP), Project Management Institute, MAR 2014 - MAR 2020, License 1698341

COMPUTER QUALIFICATIONS:

- R, Experienced, > 15,000 lines written, > 2 years of experience
- ProModel, Proficient, > 3,000 lines written, > 1 year of experience
- Python, Novice, < 1 year experience