

Stephen H. Rapp, PhD

7264 Forrest Ave
Newport, MI 48166

Email: stephen.rapp@wayne.edu
Phone: 248.556.6450

BIOGRAPHY

A senior technical manager, executive, and scientist with over 30 years of professional experience in roles including Marine combat armor officer, software and systems analyst, project and program manager, consulting executive, and research scientist. Experience spans prestigious organizations such as the USMC, IBM, CapGemini, General Dynamics Land Systems, U.S. Army, and Wayne State University.

Academic Expertise: Teaching and developing engineering courses that provide a mix of theoretical and practical education, with an emphasis on supporting professional certification.

Technical Expertise: IT, Modeling & Simulation, Data Warehousing, Operations Research, Decision & Risk Analysis, Mathematical Optimization and Manufacturing/Industrial Engineering.

Defense-specific Expertise: Armored warfare, acquisition, operations research, amphibious warfare and space warfare.

Analytical Expertise: Designing, conducting, and leading projects for data warehousing, data mining, on-line analytical processing tools and custom analytical data-marts for business intelligence consulting at multiple leading Fortune 100 corporations.

ADJUNCT FACULTY EXPERIENCE

Wayne State University Adjunct (Part Time) Professor of Industrial and Systems Engineering (2014 to present)

- Developed/modified 11 classes for the department, all available as in-class, synchronous web and asynchronous web, except as noted:
 - IE 6720 – Engineering Risk and Decision Analysis for Technical Managers
 - DSA 6300/IE 6300 - Decision Analysis and Simulation
 - IE 8920 - Global Decision and Risk Analysis for Technical Managers
 - IE 4850 - Engineering Economy
 - IE 6490 - Introduction to Systems Engineering in Design
 - IE 8941/2 - From Idea through Launch: Products and Services: Design for Six Sigma Module
 - IE7610 - Fundamentals of Lean Six Sigma
 - IE 6620 Lean Six Sigma Capstone, formerly IE 7995 - Graduate Special Topics - Six Sigma Blackbelt Capstone Course
 - IE 7995 – Project Risk Analysis (taught synchronous)
 - IE 6840 – Engineering Project Management
 - Complete rebuild for the web to include teaching cloud-based project/task management with Trello
 - PMP Certification Test Preparation
 - IE 6290 - Nonparametric Statistics (not offered yet)
- Lean Six Sigma Master Black Belt for WSU's College of Engineering: created a path for Green and Black Belt Certification from the following organizations
 - Wayne State University (added the Black Belt Certificate)
 - Quality America (Green Belt)
 - Quality Council of Indiana (Preparation Material)
 - American Society for Quality (Green and Black Belt)
 - International Quality Federation (Black Belt)

Wayne State University: Doctoral Candidate of Industrial and Systems Engineering and Intern, Ground Vehicle Systems Center (2008 to 2017)

- Completed a PhD in Industrial Engineering

Resume of Stephen H. Rapp, PhD

Page 2 of 3

-
- Developed a mathematical framework extending the set-based design process with analytical methods to create a more resilient trade study and acquisition program. Purpose: support Program Executive Offices to avoid program breeches and failures.
 - Created a more resilient product development process to leverage requirements, risk and uncertainty for continuous, updated decisions.

University of Colorado – Honoraria (Adjunct) Professor of Engineering, Space Operations (1989 to 1990 and 1992 to 1996, break due to Desert Storm combat tour)

- Honoraria in the Electrical Engineering Department for the Space Operations, ME curriculum.
- Taught all Operations Research (OR) courses and developed the entire OR Modeling track:
 - Introduction to Engineering (Undergraduate Entry Course to all Engineering majors) – first combined in-class and on-line asynchronous class) – very large class sizes
 - Introduction to Operations Research (stochastic modeling and linear programming)
 - Engineering Optimization (integer, network and non-linear mathematical programming)
 - Engineering Project Management
 - Engineering Simulation (both discrete event and continuous simulation)
- Advised over 80 Space Operations graduate student capstone papers (mini theses)

EDUCATION

Doctor of Philosophy in Industrial Engineering Wayne State University	Detroit, MI	2017
International Program and Project Manager School Cap Gemini Université	Behoust, France	1999
Command & Staff Graduate Diploma USMC Command & Staff College	Quantico, VA	1991
Master of Science in Operations Research (Engineering Optimization) Naval Postgraduate School	Monterey, CA	1987
Bachelor of Science (Engineering and Finance) US Naval Academy	Annapolis, MD	1982

ACADEMIC RECOGNITION

Best Paper Award – Systems Engineering Journal – 2018/2019
Design for Six Sigma Black Belt Qualification – 2010, 2012 and 2014
University of Colorado, Colorado Springs Honoraria of the Year – 1995
Operations Research Society of America, Koopman Prize – 1989
Military Operations Research Society, Tisdale Prize – 1987

PUBLICATION RECORD

- S. Rapp, et. al., “Exploration of Support Methods for Tradespace Exploration”, April 2023, Conference: WCX SAE World Congress Experience, 2023. DOI: 10.4271/2023-01-0117
- S. Rapp, et. al., “A Synthetic Tradespace Model for Tradespace Analysis and Exploration”, August 2022, Conference: ASME 2022 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference at: St. Louis, MO, 2022. DOI: 10.1115/DETC2022-91080
- S. Rapp, et. al., “Tradespace Organizational Practices: A Case Study”, August 2022, Conference: ASME 2022 International Design Engineering Technical Conferences and Computers and Information in Engineering

Resume of Stephen H. Rapp, PhD

Conference at: St. Louis, MO, 2022. DOI: 10.1115/DETC2022-91091

- S. Rapp, et. al., “Combat Vehicle Program Management and Product Development Resilience through Set-Based Design”, August 2022, Conference: 2022 NDIA Michigan Chapter Ground Vehicle Systems Engineering and Technology Symposium at Novi, MI, 2022.
- S. Rapp, et. al., “Using Dependency and Structure Modeling for temporal decision making in Set-Based Design”, Conference: DSM 2020 – The 22nd International DSM Conference at MIT, Cambridge, MA, 2020. DOI: 10.35199/dsm2020.10
- S. Rapp, et. al., “Current Trends & Challenges in Prosthetic Product Development: Literature Review”, International Journal of Science and Research (ISJR) 8(6):1554-1563, 2019. DOI: 10.21275/ART20198727
- S. Rapp, “Set-Based Design and Optimization.... can they live together and make better Trade Space Decisions?”, Conference: 2018 NDIA Ground Vehicle Systems Engineering and Technology Symposium at: Novi, MI, 2018.
- S. Rapp, et. al., “Product Development Resilience through Set-Based Design”, Systems Engineering Journal, 2018. DOI: 10.1002/sys.21449. 2018 Systems Engineering Journal Best Paper Award
- S. Rapp, “Product Development Resilience through Set-Based Design”, Dissertation, Digital Commons @ Wayne State University, Detroit, MI, 2017. DOI: 10.13140/RG.2.2.22691.14885
- S. Rapp, “When Analysis Fails in Merger Acquisitions”, Case Study, Wayne State University, 2016. DOI: 10.13140/RG.2.2.28918.70722
- S. Rapp, “The Engineer with a Missing Finger: Risk and Value in Mining”, Case Study, Wayne State University, 2014. DOI: 10.13140/RG.2.2.30522.49605
- S. Rapp, et. al., “Injection of Reliability, Availability, and Maintainability (RAM) Modeling & Assessment into the Advanced Collaborative System Optimization Model (ACSOM)”, Conference: 2010 NDIA Ground Vehicle Systems Engineering and Technology Symposium At: Dearborn, MI, 2010.
- S. Rapp, “Advanced Collaborative System Optimization Modeler (ACSOM) and Search, Explore and Learn (SEAL)”, Military Operations Research Society Symposium (76th) at New London, CT, 2008. DTIC: ADM202527
- L. Rainey (ed), Applied Modeling and Simulation: An Integrated Approach to Development and Operation, McGraw-Hill Education, New York, NY, 1998.
- S. Rapp, Chapter 5: Creating a Modeling and Simulation Baseline.* ISBN: 978-0072283037.
- S. Rapp, et. al., “Mobilizing Marine Corps Officers”, INFORMS Interfaces 21(4):26-38, 1991. DOI: 10.1287/inte.21.4.26. 1991 INFORMS MAS Koopman Prize
- S. Rapp, “Design and Implementation of a Network Optimizer for Officer Assignment during Mobilization”, Thesis, U.S. Naval Postgraduate School, Monterey, CA 1990. DTIC: AD-A187 772. 1990 MORS Tisdale Prize

ORCID: <http://orcid.org/0000-0001-6753-3029>