DR. SAURABH MITTAL
smittal@duniptech.com, 520-204-2641

EDUCATION

Ph.D., 2007. Electrical and Computer Engineering, University of Arizona, Tucson
Minor 1: Systems and Industrial Engineering
Minor 2: Management Information Systems
Concentration in Systems Modeling & Simulation, executable architectures, complex systems engineering using M&S
Advisor: Dr. Bernard Zeigler

M.S., 2003. Electrical and Computer Engineering, University of Arizona, Tucson
Concentration in computer networks, and modeling and simulation theory and application
Advisor: Dr. Bernard Zeigler

B.Tech., 2001. Electrical Engineering, Jamia Millia Islamia, India

IBM, 2000, Certified Application Developer

CURRENT ENGAGEMENTS

2015 – present: Lead Systems Engineer/Scientist, MITRE Corporation, McLean, VA
2017 – present: Member of Board of Directors, Society of Modeling & Simulation (SCS) (www.scs.org)
2017 – present: Associate Editor, Journal of Defense Modeling and Simulation
2016 – present: Vice President – Memberships, SCS
2016 – present: Associate Editor-in-chief, Transactions of SCS, SIMULATION
2015 – present: Chief Editor, Enterprise Architecture Body of Knowledge (www.eabok.org)
2014 – present: Founder and President, Dunip Technologies, LLC, VA

EMPLOYMENT HISTORY

06/2018 – 09/2018: Chair, EABOK
07/2014 – 09/2015: Scientist IV and Architect, National Renewable Energy Lab, Dept. of Energy, Golden CO
08/2010 – 06/2014: Research Scientist, L-3 Communications, Air Force Research Lab, WPAFB, OH
05/2010 – 08/2010: Applications Systems Engineer V, Comsys LLC (client: Wells Fargo Co.), Tempe, AZ
08/2008 – 07/2014: Founder and President, Dunip Technologies, Tempe, AZ
12/2008 – 05/2010: Software Engineer, Apollo Group Inc., Phoenix, AZ
10/2007 – 05/2008: Research Asst. Professor, ECE Dept., University of Arizona, Tucson, AZ
06/2005 – 10/2007: Research Engineer III, NGIT at ACIMS, University of Arizona, Tucson, AZ
09/2004 – 06/2005: Research Intern, Northrop Grumman Info. Tech, ACIMS Lab, Univ. of Arizona, Tucson
08/2001 – 06/2005: Research Assistant, ACIMS Lab, ECE Dept., University of Arizona, Tucson, AZ

TECHNICAL/RESEARCH INTERESTS

- Model-driven System of systems engineering and executable architectures
- Complex adaptive systems, cyber complex systems and netcentric sociotechnical systems
- Emergent engineering using modeling and simulation (M&S) for cyber physical & multi-agent systems
- Network Science, graph representation, semantic and complexity analyses
- Hybrid, discrete, continuous, agent-based, parallel, distributed M&S
- Software engineering, test and analysis of distributed systems
- Multi-paradigm platform independent systems/software M&S using domain specific languages
- Interoperability and cross-platform software engineering & Modeling-Simulation software w/o SOA w/o real-time execution in environment like Live, Virtual and Constructive (LVC) or hardware-in-the-loop

TEACHING EXPERIENCE

Electrical and Computer Engineering, University of Arizona

Spring 2008	Research Asst. Prof.	Distributed Simulation (ECE 676)
Fall 2007	Research Asst. Prof.	Object Oriented Modeling and Discrete Event Simulation (ECE 575)
Spring 2005	Teaching Assistant	Software Engineering Concepts (ECE 473/573)
Fall 2003	Teaching Assistant	Object Oriented Modeling and Discrete Event Simulation (ECE 575)

TENURE SELECTION COMMITTEE

2015 External reviewer for Layola University, MD, USA

EXTERNAL TECHNICAL COMMITTEE MEMBERSHIPS

2019: General Chair: Annual Simulation Symposium, Spring Simulation Multi-conference, Tucson, AZ
Track Chair: M&S of Complex, Intelligent, Adaptive and Autonomous Systems, Springsim19, Wintersim19

2018: *Awards Chair*: Spring Simulation Multi-Conference (SpringSim'18), Baltimore, MD
General Chair: Symposium on M&S of Complex, Intelligent, Adaptive and Autonomous Systems, SpringSim'18, SummerSim'18, WinterSim'18

2017: *General Chair*: Spring Simulation Multi-Conference (SpringSim'17), Arlington, VA
General Chair: Symposium on M&S of Complexity in Intelligent, Adaptive and Autonomous Systems, SpringSim'17, SummerSim'17, WinterSim'17
Steering Committee: Summer Simulation Multi-Conference 2017

2016: *Awards Chair*: Summer Simulation Multi-Conference (SummerSim'16), Montreal, CA
Vice General Chair: Spring Simulation Multi-Conference (SpringSim'16), Huntington Beach, CA
General Chair: Symposium on M&S of Complexity in Intelligent, Adaptive and Autonomous Systems, SpringSim'16
General Chair: Track on M&S of Intelligent, Adaptive and Autonomous Systems, Summer Computer Simulation Conference, SummerSim'16, Montreal, Canada
Track Co-Chair: Workshop on Model Engineering for System of Systems, European Modeling and Simulation Symposium, Cyprus
Track Co-Chair: Model Engineering for System of Systems, Autumn Simulation Conference, AsiaSim, Beijeing, China

2015: *General Chair:* Summer Simulation Multi-conference (SummerSim'15), Chicago, IL
General Chair: Summer Computer Simulation Conference (SCSC'15), Chicago, IL
General Chair: Workshop on Computational Challenges in Energy Systems Integration and Grid Modernization, National Renewable Energy Lab, Department of Energy, Golden, CO
Program Chair: Spring Simulation Multi-conference, (SpringSim'15) Alexandria, VA
Track Chair: M&S for Intelligent, Adaptive and Autonomous Systems, SCSC'15, Chicago, IL
Track Co-Chair: M&S in Energy Systems Integration and Smart Grid, SCSC'15, Chicago, IL
Track Co-Chair: Model Engineering, European Modeling and Simulation Symposium, Italy

2014: *General Co-Chair:* Summer Simulation Multi-conference (SummerSim'14), Monterey, CA
General Co-Chair: Summer Computer Simulation Conference, (SCSC'14), Monterey, CA
Track Chair: M&S for Intelligent, Adaptive and Autonomous Systems, SCSC'14, Monterey, CA
Track Chair: Methodology, Theory of Modeling and Simulation/DEVS Symposium, SpringSim'14
Track Co-Chair: Model Engineering, European Modeling and Simulation Symposium, France

2013: *Track Co-Chair*: M&S Software, DEVS Spring Simulation Conference
Session Chair: Modeling Methodology, Winter Simulation Conference

2010: *Track Co-Chair*: Executable Architecture, Summer Computer Simulation Conference

2007: *Session Chair:* DEVS Collaborative Execution over SOA, DEVS Integrative Symposium, SpringSim'07
2005: *Session Chair:* IEEE International Conference on Systems, Man and Cybernetics, Hawaii

International Program Committee
2017 – 2018: International Conference on Complex Systems
2017 – 2018: IEEE Distributed Systems – Real Time Conference
2007 – 2018: Summer Computer Simulation Conference
2006 – 2018: Spring Simulation Multiconference
2014 – 2018: European Modeling and Simulation Symposium
2015 – 2018: IEEE System of Systems Conference
2007, 2013 – 2018: Winter Simulation Conference
2014 – 2016: SCS Conference Committee overseeing all SCS conferences
2015 – 2016: ACM SIGSIM Parallel and Distributed Simulation (PADS) Conference
2015 – 2016: SIMULTECH
2015 – 2106: SIMUL
2015: IEEE System of Systems Conference
2012: IEEE Workshop on Modeling and Simulation on Grid and Cloud Computing
2008 – 2009: Parallel Architectures and Bioinspired Algorithms
2008: European Conference on Modeling and Simulation, ECMS

Review Service
Journal: IEEE Systems
Journal: IEEE Software
Journal: IEEE Transactions on Systems, Man and Cybernetics-Part C: Applications and Reviews
Journal: The International C2 Journal (Command and Control Research Program: CCRP)
Journal: Cognitive Systems Research (Elsevier)
Journal: Journal of Defense Modeling and Simulation
Journal: International Journal of Modeling and Simulation (ActaPress)
Journal: Simulation Modeling Practice and Theory (Elsevier)
Journal: ACM Transaction on Modeling and Computer Simulation
Journal: SCS Transactions of the Society for Modeling and Simulation International
Journal: Electronics and Telecommunications Research Institute (ETRI), South Korea
Journal: Intelligent Automation and Soft Computing
Magazine: IEEE Systems, Man and Cybernetics
4th Annual IEEE Conference on Automation Science and Engineering (CASE), Washington DC, USA
SIMUTools 2008, France

PROFESSIONAL SOCIETY OR ASSOCIATION MEMBERSHIP

Society of Computer Simulation (SCS),
Association for Computing Machinery (ACM),
Institution of Electronics and Electrical Engineers (IEEE),
Market Advisory Board: Business Week Magazine (2007-2009)

HONORS

2018	Book Authority.org Top 8 Engineering Books 2018, Top 5 Engineering Ebooks All Time, All Time Engineering Books
2018	Featured in Virginia, Modeling, Analysis and Simulation Center 20th Anniversary Video
2017	MITRE Project Story: New Modeling and Simulation Book Spotlight a Dynamic Field: https://www.mitre.org/publications/project-stories/new-modeling-and-simulation-books-spotlight-a-dynamic-field
2017	MITRE Ribbons for Outreach Activity (ROAR) Award, SPOT Award, Spark Award
2017	Outstanding Professional Contribution Award from Society of Modeling and Simulation (SCS) International
2016	Outstanding Service Award from SCS
2015	Best Paper award for Summer Simulation Multi-conference, Chicago, IL
2013	Featured as cover story on Silicon India
2009	Classified by US Center for Immigration Services in Extraordinary Ability (EB1-EA) category
2008	Classified by US Center for Immigration Services in US National Interest (EB2-NIW) category
2006	Highest Civilian Contractor: Golden Eagle Award – JITC, US Department of Defense
2006	Best M&S Development in Cross-functional area (Team) - National Training Simulation Association (NTSA)
2006	Outstanding Research Assistant/Staff – Nominee (8000/36000) graduate students, Univ. Of Arizona
2004	Herculean Effort Leadership Award – University of Arizona
2001-05	Graduate Research Assistant Scholarship/Fellowship, ECE Department, Univ. of Arizona

PUBLICATIONS

Google Citations	1530
h-index	19
i10-index	40

Intellectual Property

Patent: Damodaran, S. and Mittal, S., Methods and System for Evaluating Effects of Cyber Attacks on Cyber-Physical Systems (filed 05/17), held jointly by MITRE

Invited Talks

Mittal, S., (2014) Attention-Focusing in Activity-based Intelligent Systems, Activity-based Modeling and Simulation, Zurich, Switzerland

Mittal, S., (2010) Net-centric Cognitive Architecture using DEVS Unified Process, Researching and Developing Persistent and Generative Cognitive Models Workshop, sponsored by US Air Force Research Lab, 711th Human Performance Wing and European Office of Aerospace Research and Development, Nov 9-11, Scottsdale, AZ, USA

Panelist

Brown. B., **Mittal, S.,** Tolk, A., Arafat, S. (2015), Building the Virtual Product with Big Models, Panel on M&S for Intelligent, Adaptive and Autonomous System, Summer Computer Simulation Conference, Chicago, IL

Newsletters (2)

Mittal, S., (2018) Emergence, Complexity and the Role of Modeling and Simulation, SCS Newsletter, March

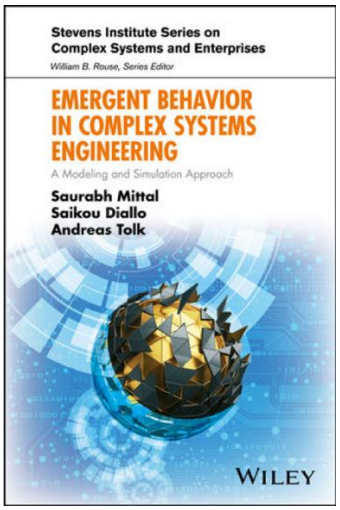
Mittal, S., (2013) Book review for Guide to Modeling and Simulation of System of Systems (Simulation, Foundations, Methods and Applications) by B.P. Zeigler, H. Sarjoughian, R. Duboz, J.C. Soulie, Springer 2012, 393 pages

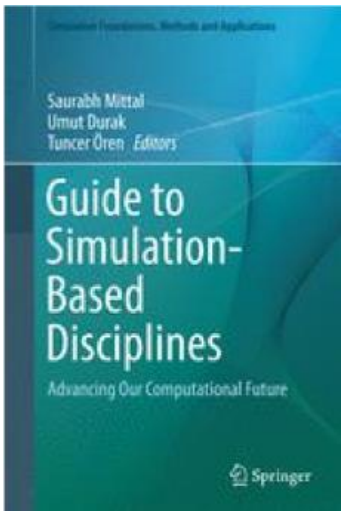
Books (3)

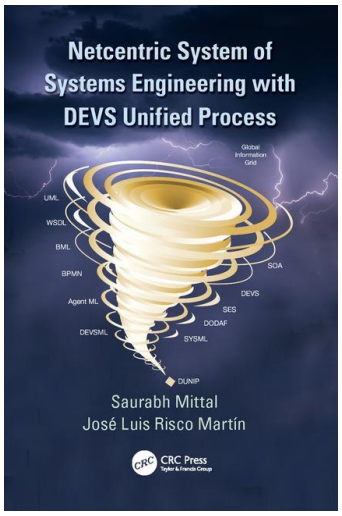
Mittal, S., Diallo, S., Tolk, A., (eds.)(2018) *Emergent Behavior in Complex Systems Engineering: A Modeling and Simulation Approach*, Wiley & Sons, ISBN-13: 978-1119378860

Mittal, S., Durak, U., Oren, T., (2017) *Guide to Simulation-based Disciplines: Advancing Our Computational Future*, Springer, UK. ISBN 978-3-319-61264-5

Mittal, S., Martin, J.L.R. (2013), *Netcentric system of systems engineering with DEVS unified process*, CRC Press, Boca Raton, FL, USA, ISBN: 9781439827062







Proceedings and Special Issues (7)

Mittal, S., Martin, J.L.R., Lutzenberger, M. (eds.) (2018) *Proceedings of Symposium on Modeling and Simulation and Complexity in Intelligent, Adaptive and Autonomous Systems*, Spring Simulation Multi-conference

Mittal, S., Martin, J.L.R., (eds.) (2017) *Proceedings of Symposium on Modeling and Simulation of Complexity in Intelligent, Adaptive and Autonomous Systems*, Spring Simulation Multi-conference

Diallo, S., Durak, U., Mustafee, N. **Mittal, S.**, eds. (2016) *Modeling and Simulation in the era of Big Data and Cloud Computing: Theory, Methodology and Tools*, Special Issue in Transactions of SCS

Mittal, S., Martin, J.L.R., Cetinkaya, D., Zapater, M., (2016) Proceedings of Symposium on Complexity in Intelligent, Adaptive and Autonomous Systems, Society of Computer Simulation International

Zhang, L, Zeigler, B.P., **Mittal, S., (**eds.) (2016) *Model Engineering*, Special Issue in International Journal of Modeling, Simulation and Scientific Computing, World Scientific

Mittal, S., Martin, J.L.R., (eds.) (2016) *Proceedings of Symposium on Modeling and Simulation of Complexity in Intelligent, Adaptive and Autonomous Systems*, Spring Simulation Multi-conference

Mittal, S., DeRango, F., (eds.) (2015) *Proceedings of Summer Computer Simulation Conference*, Society of Computer Simulation International

Zander, J., **Mittal, S.,** (eds.) (2014) *Proceedings of Summer Computer Simulation Conference*, Society of Computer Simulation International

Book Chapters (19)

Martin, J.L.R., **Mittal, S.**, Model Management and Execution in DEVS Unified Process, in Lin Zhang, B.P. Zeigler (eds.) *Model Engineering for Simulation*, Elsevier (to appear)

Zeigler, B.P., **Mittal, S.** (2017) System Theoretic Foundations for Emergent Behavior modeling: The case of emergence of Human Language in a resource-constrained complex intelligent dynamical system, in **S.Mittal**, S. Diallo and A. Tolk (eds) *Emergent Behavior in Complex Systems Engineering: A Modeling and Simulation Approach*, Wiley & Sons

Tolk, A., Diallo, S., **Mittal**, S. (2017) Complex Systems Engineering and the Challenge of Emergence, in **S.Mittal**, S. Diallo and A. Tolk (eds) *Emergent Behavior in Complex Systems Engineering: A Modeling and Simulation Approach*, Wiley & Sons

Oren, T., **Mittal, S.**, Durak, U., (2017) Induced Emergence in Computational Social Systems Engineering: Multimodels and Dynamic couplings as Methdological Basis, in **S.Mittal**, S. Diallo and A. Tolk (eds) *Emergent Behavior in Complex Systems Engineering: A Modeling and Simulation Approach*, Wiley & Sons

Diallo, S., **Mittal, S.,** Tolk, A., (2017) Research Agenda for Next Generation Complex Systems Engineering, in **S.Mittal**, S. Diallo and A. Tolk (eds) *Emergent Behavior in Complex Systems Engineering: A Modeling and Simulation Approach*, Wiley & Sons

Oren, T., Mittal, S., Durak, U., Modeling and Simulation: Essence and Increasing Importance, in Muaz Niazi (ed.) *Modeling and Simulation of Complex Networks*, by Muaz Niazi, Elsevier

Oren, T., Turnista, C., **Mittal, S.**, Diallo, S., (2017) Simulation-based Learning and Education, in **S.Mittal**, U. Durak and T. Oren, *Guide to Simulation-based Disciplines: Advancing our computational future*, Springer UK

Mittal, S., Martin, J.L.R., (2017) Simulation-based Complex Adaptive Systems, in **S. Mittal**, U. Durak and T. Oren, *Guide to Simulation-based Disciplines: Advancing our computational future*, Springer UK

Oren, T., **Mittal, S.,** Durak, U., (2017) The Evolution of Simulation and its contribution to many disciplines, in **S. Mittal**, U. Durak and T. Oren, *Guide to Simulation-based Disciplines: Advancing our computational future*, Springer UK

Mittal, S., Zeigler, B.P., (2017) Theory and Unified Process for the Practice of M&S in Cyber Environments, in A. Tolk and T. Oren (eds.), *The Profession of Modeling and Simulation,* John Wiley & Sons.

Mittal, S., Doyle, M.J., Portrey, A.M., (2014) Human-in-the-loop modeling in System of Systems M&S: Applications to Live, Virtual and Constructive (LVC) Distributed Mission Operations (DMO), In *Handbook on M&S Support for System of Systems Engineering*, Ed. Tolk, A., Rainey, L., John Wiley & Sons

Mittal, S., (2013) Netcentric Complex Adaptive Systems, in **S. Mittal** and J.L.R Martin, Netcentric System of Systems Engineering with DEVS Unified Process, CRC Press, Boca Raton, FL

Douglass, S.A., **Mittal, S.** (2012), A framework for modeling and simulation of the artificial, In *Ontology, Epistemology, and Teleology of Modeling and Simulation*, Ed. A. Tolk, Springer-Verlag, Berlin

Mittal, S. (2011), Agile net-centric systems with DEVS unified process, In *Intelligence-based Systems Engineering*, Ed. Tolk, A., and Jain, L., Springer-Verlag Berlin

Wainer, G., Zoubi, K., Dalle, O., Hill, D., **Mittal, S.,** Martin, J.L.R., Sarjoughian, H., Touraille, L., Traore, M., Zeigler, B.P. (2010), Standardizing DEVS simulation middleware, In *Discrete Event Modeling and Simulation: Theory and Applications*, Ed. Wainer, G., Mosterman, P., CRC Press

Wainer, G., Zoubi, K., Dalle, O., Hill, D., **Mittal, S.,** Martin, J.L.R., Sarjoughian, H., Touraille, L., Traore, M., Zeigler, B.P. (2010), Standardizing DEVS model representation, In *Discrete Event Modeling and Simulation: Theory and Applications*, Ed. Wainer, G., Mosterman, P., CRC Press

Wainer, G., Zoubi, K., **Mittal, S.,** Martin, J.L.R., Sarjoughian, Zeigler, B.P (2010), An introduction to DEVS Standardization, In *Discrete Event Modeling and Simulation: Theory and Applications*, Ed. Wainer, G., Mosterman, P., CRC Press

Wainer, G., Zoubi, K., Dalle, O., Hill, D., **Mittal, S.,** Martin, J.L.R., Sarjoughian, H., Touraille, L., Traore, M., Zeigler, B.P. (2010), DEVS Standardization: Ideas, trends and future, In *Discrete Event Modeling and Simulation: Theory and Applications*, Ed. Wainer, G., Mosterman, P., CRC Press

Mittal, S., Zeigler, B.P., Martin, J.L.R., Sahin, F., Jamshidi, M. (2008), Modeling and simulation for systems of systems engineering, In *System of Systems Engineering for 21st Century*, Ed. Mo Jamshidi, Wiley

Journal Articles (14)

Mittal, S., Martin, J.L.R., Luetzenberger, M., (2018) Editorial to Proceedings of M&S and Complexity in Intelligent, Adaptive and Autonomous Systems, Springsim18, SCS/

Mustafee, N., **Mittal, S.**, Diallo, S., Zacharewicz, G., (2018) The Advances in the State of the Art: Discrete Event System Specifications (DEVS) – Editorial, Special Issue in Transactions of SCS: Simulation, 94(4)

Mustafee, N., **Mittal, S.**, Diallo, S., Zacharewicz, G., (2018) Hybrid Systems Modeling – Editorial, Special Issue in Transactions of SCS: Simulation, 94(3)

Oren, T., **Mittal, S.**, Durak, U., (2017) A Shift from Model-based to Simulation-based Paradigm: Timeliness and Usefulness to Many Disciplines, *International Journal of Computer and Software Engineering* (invited)

Martin, J.L.R, **Mittal, S.**, Fabero, J.C., Correa, R.H. (2016), Reconsidering Performance of DEVS Simulation Environments using the DEVSStone Benchmark, Transactions of SCS: SIMULATION, 93(7)

Mittal, S., Zeigler, B.P., (2014), Context and attention in activity-based intelligent systems, Proceedings of Activity-based Modeling and Simulation (ACTIMS'14), ITM Web of Conferences (3), DOI: http://dx.doi.org/10.1051/itmconf/20140303001, *invited*

Mittal, S. (2013), Emergence in Stigmergic and Complex Adaptive Systems: A Formal Discrete Event Systems Perspective, *Cognitive Systems Research,* 21, 22-39, DOI: 10.1016/j.cogsys.2012.06.003

Mittal, S., Zeigler, B.P., Martin, J.L.R. (2010), Implementation of formal standard for Interoperability in M&S/System of systems integration with DEVS/SOA, *International Command and Control Journal*, 3(1)

Mak, E., **Mittal, S.,** Hwang. M.H., Nutaro, J. (2010), Automated Link-16 testing using the discrete event system specification and extensible markup language, *Journal of Defense Modeling and Simulation*, 7(1), 39-62

Martin, J.L.R., **Mittal, S.,** Mendel, J., Zeigler, B.P. (2009), eUDEVS: Executable UML using DEVS theory of modeling and simulation, *Transactions of SCS*, 85(7), 750-777

Mittal, S., Martin, J.L.R., Zeigler, B.P. (2009), DEVS/SOA: A cross-platform framework for net-centric modeling and simulation in DEVS unified process, *Transactions of SCS*, 85(7), 419-450 (**Top 5 in last 5 years in SIMULATION**)

Mittal, S., Mak, E., Nutaro, J. (2006), DEVS-based dynamic model reconfiguration and simulation control in the enhanced DoDAF design process, *Journal of Defense Modeling and Simulation*, 3(4), 239-267

Mittal, S. (2006), Extending DoDAF to allow DEVS-based Modeling and Simulation, *Journal of Defense Modeling and Simulation*, 3(2), 95-123

Hu, X., Zeigler, B.P., **Mittal, S.** (2005), Variable structure in DEVS component-based modeling and simulation, *Transactions of SCS*, 81(2), 91-102 (**Top 5 most cited in SIMULATION**)

Conference/Workshop Papers (34)

Tolk, A., Page, E., **Mittal, S.**, (2018) Hybrid Simulation for Cyber Physical Systems - State of the Art and a Literature Review, Annual Simulation Symposium, Spring Simulation Multi-conference, Baltimore, MD

Durak, U., Hartmann, S., Shafagh, S.**, Mittal, S.,** Wittman, R., Zeigler, B.P. (2017) Computational Representation for a Simulation Scenario Definition Language, AIAA SciTech

Mittal, S., Martin, J.L.R. (2017) DEVSML 3.0 Stack: Rapid Deployment of DEVS Farm in Distributed Cloud Environment using Microservices and Containers, Symposium on Theory of M&S/DEVS, Spring Simulation Multi-conference, Virginia Beach, VA:

Pratt, A., Ruth, M., Krishnamurthy, D., Sparn, B., Lunacek, M., Jones, W., **Mittal, S.**, Wu, H., Marks, J., Hardware-in-the-Loop Simulation of a Distribution System with Air Conditioners under Model Predictive Control, IEEE Power Engineering Society General Meeting.

Kewley, R., Siegfried, R., Sanders, C., **Mittal, S**., Wallace, S., Kambouris, S., (2017) Cloud-based Modeling and Simulation, Simulation Interoperability Standards Organization (SISO) Fall Interoperability Workshop, Orlando, FL

Pagan, J., Moya, J.M., **Mittal, S.,** Ayala, J.L., (2017) Advanced Migraine Prediction Simulation System, Summer Computer Simulation Conference, Seattle, WA

Damodaran, S., **Mittal, S.** (2017) Controlled Environments for Cyber Risk Assessment of Cyber-Physical Systems, Summer Simulation Multi-conference, Seattle, WA

Damodaran, S., **Mittal, S.** (2017) Modeling Cyber Effects in Cyber-Physical Systems with DEVS, Symposium on Theory of Modeling and Simulation/DEVS, Spring Simulation Multi-conference, Virginia Beach, VA

Mittal, S., Martin, J.L.R., (2016) DEVSML Studio: A framework for integrating domain-specific languages for discrete and continuous hybrid systems into DEVS-based M&S environment, Proceedings of the Summer Computer Simulation Conference

Mittal, S., Cane, S.A., (2016) Contextualizing Emergence in System of Systems Engineering with gap analysis, Symposium on M&S of Complexity in Intelligent, Adaptive and Autonomous Systems, Spring Simulation Multi-conference, Pasadena, CA

Martin, J.L.R., **Mittal, S.,** Fabero, J.C., Malagon, P., Ayala, J.L. (2016) Real-time hardware/software co-design using DEVS-based transparent M&S framework, Summer Computer Simulation Conference, Chicago, IL

Mittal, S., Rainey, L.B., (2015) Harnessing emergence: The design and control of emergent behavior in system of systems engineering, Summer Computer Simulation Conference, Chicago (best paper)

Mittal, S., Ruth, M., Pratt, A., Lunacek, M., Krishnamurthy, D., Jones, W., (2015), A System-of-Systems approach for integrated energy systems modeling and simulation, Summer Computer Simulation Conference, Chicago

Ruth, M., Pratt, A., Lunacek, M., **Mittal, S.,** Wu, H., Jones, W., (2015), Effects of Home Energy Management Systems on Distribution Utilities and Feeders under various market structures, 23rd International Conference on Electricity Distribution

Mittal, S., (2014), Model engineering in cyber complex adaptive systems, European Modeling and Simulation Symposium, Bordeaux, France

Tolk, A., **Mittal, S.,** (2014), A necessary paradigm change to enable composable cloud-based M&S Services, Winter Simulation Conference, *invited*

Mittal, S., Zeigler, B.P. (2014), Modeling attention switching in resource constrained complex intelligent dynamical systems (RCIDS), *Symposium on Theory of M&S/DEVS, Spring Simulation Multi-conference*, Tampa, FL

Mittal, S., Martin, J.L.R. (2013), Model-driven Systems Engineering in a netcentric environment with DEVS unified process, invited paper to *Winter Simulation Conference*, Washington, DC.

Mittal, S., Doyle, M.J., Watz, E., (2013), Detecting intelligent behavior with environment abstraction in complex air combat systems, *IEEE Systems conference*, Orlando, FL

Mittal, S., & Douglass, S. A. (2012). DEVSML 2.0: The Language and the Stack. *DEVS Symposium, Spring Simulation Multiconference – Springsim'12*, Orlando, FL

Mittal, S., & Douglass, S. A. (2011). Net-centric ACT-R-Based cognitive architecture with DEVS unified process. *DEVS Symposium, Spring Simulation Multiconference* -- *SpringSim'11*, Boston, MA.

Mittal, S., & Douglass, S. A. (2011). From domain specific languages to DEVS components: Application to cognitive M&S. *Workshop on Model-driven Approaches for Simulation Engineering* -- SpringSim'11, Boston, MA.

Douglass, S. A., & **Mittal, S.** (2011). Using domain specific modeling languages to improve the scale and integration of cognitive models. *Proceedings of the 20th Annual Conference on Behavior Representation in Modeling & Simulation*. Provo, UT.

Murano, A., Martin, J.L.R., Portas, E.B., **Mittal, S.,** Aranda, J. (2009), DEVS/SOA: Towards DEVS Interoperability in distributed M&S, *IEEE/ACM International Symposium on Distributed and Real-Time Applications*

Zeigler, B.P, **Mittal, S.,** Hu, X. (2008), Towards a formal standard of interoperability in M&S/System of systems engineering, *Critical Issues in C4I, AFCEA-George Mason University Symposium*

Mittal, S., Zeigler, B.P. (2008), DEVS unified process for web-centric development and testing of system of systems, Critical *Issues in C4I, AFCEA-George Mason University Symposium*

Mittal, S., Martin, J.L.R., Zeigler, B.P. (2008), WSDL-based DEVS agent for net-centric systems engineering, *International Workshop on Modeling and Applied Simulation*, Italy

Mittal S., Zeigler B.P. (2008), "DEVS Unified Process for integrated development and testing of system of systems", *Critical Issues in C4I, AFCEA-George Mason University Symposium*

Mittal, S., Martin, J.L.R., Zeigler, B.P. (2007), DEVSML: Automating DEVS simulation over SOA using transparent simulators", *DEVS Symposium*

Mittal, S., Martin, J.L.R., Zeigler, B.P. (2007), DEVS-Based web services for net-centric T&E", *Summer Computer Simulation Conference*

Mittal, S., Mitra, A., Gupta, A., Zeigler, B.P., (2006) Strengthening OV-6a Semantics with Rule-based meta-models in DEVS/DoDAF-based Life-cycle Architectures Development, IEEE International Conference on Information Reuse and Integration, HI, USA

Mittal, S., Zeigler, B.P. (2005), Dynamic simulation control with queue visualization, *Summer Computer Simulation Conference*

Mittal, S., Wu, W., Zeigler, B.P. (2004), A multiconstraint-based real-time routing scheme using simulation methodology, *Summer Computer Simulation Conference*

Technical Reports (6)

Doyle, M.J., Portrey, A., **Mittal, S.,** Watz, E., Bennett, W., (2014) Not So Grand Challenge: Are current modeling architectures viable for rapid behavior modeling? (AFRL-RH-OH-2014-xxxx), Air Force Research Laboratory, Human Effectiveness Directorate, Warfighter Readiness Research Division, Dayton, OH

Mittal, S. (2014), Large Scale Cognitive Modeling Initiative: Application of DEVS M&S formalism for netcentric cognitive modeling and simulation framework, L3 Communications, submitted to Air Force Research Lab, WPAFB, OH

Mittal, S., Seo, C. (2007), GENETSCOPE: Generic Network System Capable of Planned Expansion: A Manual, Joint Interoperability Test Command (JITC), Defense Information Systems Agency (DISA), Ft. Huachuca, AZ

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Thesis (3)

Ph.D. DEVS Unified Process for Integrated Development and Testing of Service Oriented Architectures

M.S. Attention-Focusing Architecture for Scalable Networked Systems using Discrete Event Modeling

B.S. Performance Evaluation of Static Routing Algorithms over Dynamic Multi-Service Networks