CHRISTOPHER J. LYNCH

1030 University Blvd., Suffolk, VA 23435 | 757-686-6248 | cjlynch@odu.edu

EDUCATION

Old Dominion University, Norfolk, VA
Ph.D. in Modeling and Simulation   **2019**
Dissertation: A Lightweight, Feedback-Driven Runtime Verification Methodology

Old Dominion University, Norfolk, VA
M.S. in Modeling and Simulation   **2012**
Thesis: A Multi-paradigm Modeling Framework for Modeling and Simulating Problem Situations

Old Dominion University, Norfolk, VA
B.S. in Electrical Engineering   **2011**
Minor: Applied Mathematics
Minor: Modeling and Simulation

ACADEMIC COMMUNITY ROLES

Associate Editor of the SIGSIM M&S Knowledge Repository   **Jan 2019 - Present**
Responsible for maintaining the CFP page for M&S related journal special issue calls and conferences

EMPLOYMENT

Old Dominion University - Virginia Modeling, Analysis and Simulation Center (VMASC)
Lead Project Scientist   **April 2020 – Present**
Leads and supports research to advance knowledge in the discipline of computational modeling and simulation (M&S). Primary research topics includes data analytics, predictive analytics, and the theory and practice of verification and validation for simulation models in support of simulation credibility. He has served as Principal Investigator (PI) for over $250k of funded research and Co-PI for over an additional $2M on topics ranging from developing analytical practices for gaining insight into simulation outcomes and behaviors from domains in COVID-19 to wargaming simulation support to modeling religion. He has contributed to the development and support of two simulation platforms and a real-time COVID-19 forecasting platform.

Old Dominion University - VMASC
Senior Project Scientist   **June 2013 – April 2020**
Conducts and supports research to advance knowledge in the discipline of M&S. His primary research topics includes data analytics, predictive analytics, the theory and practice of verification and validation for simulation models, and model conceptualization.

Old Dominion University Research Foundation - VMASC
Graduate Research Assistant   **May 2011 – June 2013**
Assist on research projects with a primary focus on the design and implementation of simulation models using multiple modeling paradigms.

RESEARCH PROJECTS

Virginia Modeling, Analysis and Simulation Center (VMASC)

Virginia County COVID-19 Daily Case Total Forecaster Platform   **March 2020 – Present**

This project creates daily forecasts of COVID-19 case counts at the county level within the state of Virginia. Additionally, the platform provides links to additional modeling and simulation resources developed to analyze and explore the spread of the virus. Platform is accessible at: https://vmasc.shinyapps.io/va-county-covid-forecast/. This has garnered print and television media attention, such as https://www.wavy.com/news/health/coronavirus/odu-creates-daily-covid-19-forecast-model-to-predict-future-cases-in-your-area/ (the platform provides links to all identified media articles).

VMASC

Automation Tools and Analytics Courses for the Naval Shipyard Project Extension   **Sept 2019 – Sept 2020**

This project extends the objectives of the "Automation Tools and Analytics Courses for The Naval Shipyard" to (i) increase the number of individual sessions conducted per training course and (ii) adds on new train-the-trainer sessions. The purpose of the train-the-trainer sessions is to inform and train personnel from the naval shipyards to be able to teach these courses into the future in order to facilitate longevity in the developed coursework across the shipyards. This work is funded by the Naval Sea Systems Command.

VMASC

Automation Tools and Analytics Courses for the Naval Shipyards   **Sept 2018 – Sept 2020**

In this project, we are automating a series of budgeting, risk assessment, and program adjustment tools for the naval shipyards to assist them in report generation. Additionally, we are developing and conducting a series of six training courses on topics pertaining to the analytics, modeling, and management of data. These training courses aim to educate naval shipyards' workforce on new methods for analyzing their large volumes of data. This project is funded by the Naval Sea Systems Command.

VMASC

Modeling Religion Project   **July 2015 – June 2018**

The Modeling Religion Project (MRP), a subproject under the umbrella of IBCSR's Simulation Religion Project, attempts to connect the sciences of M&S with the scientific study of religion (SSR). The first goal of MRP is to produce a simulation development platform that allows SSR scholars and students to create complex simulations without programming. The second goal is to produce a series of simulations of the role of religion in key transformations of human civilization. The third goal is to explain the importance of M&S to the academic study of religion. This involves web blogs, outreach efforts, and even a documentary film.

VMASC

Obesity Epidemic Model   **Spring 2012 – December**
2018

Created a model of the obesity epidemic that accounts for human behaviors and the environment around the individuals for an area. This is a multi-paradigm model that incorporates the Agent-based Modeling and Discrete Event

Simulation paradigms. UML was used to describe the behavior and structure of the system. Various verification and validation techniques were conducted on the model.

VMASC
Integrated Gaming System (IGS) Support for CUBIC   **February – September**
2014

Learned to use the IGS modeling toolkit to conduct theatre level military M&S wargaming. Conducted a training session to teach a group to use the Campaign, Planning, and Rehearsal System within IGS. Worked onsite with the customer to provide M&S support at the events.

VMASC
Integrated Gaming System (IGS) Support for CUBIC   **May – September 2013**

Learned to use the IGS modeling toolkit to conduct theatre level military M&S wargaming. Conducted a training session to teach a group of 10 controllers to use the Campaign, Planning, and Rehearsal System within IGS. Worked onsite with the customer to support the events. Attended weekly meetings at Fort Eustis or CUBIC's Hampton Office to provide M&S support

GRANTS AWARDED AS PI

Virginia Modeling, Analysis and Simulation Center
Principle Investigator: Integrated Gaming System (IGS) PWS   **Feb 2014 – Sept 2014**
Cubic: Award $263,058

Lynch, C. (Principal), Diallo, S. (Co-Principal), Barraco, A. (Co-Principal), "Integrated Gaming System (IGS) PWS," Sponsored by Cubic Applications, Inc., Private, $263,058.00. (February 21, 2014 - September 30, 2014).
Provided simulation support and training for a wargaming event by using a commercial-off-the-shelf simulation software to support the outcomes of game moves. This included database development for the simulation, onsite M&S support during development and for event support, developing an analysis plan to examine the results of each move, and conducting a five-day training session to educate game controllers on how to implement simulation components and extract requirements from game participants.

Old Dominion University Research Experience for Undergraduates
Research Experience for Undergraduates (REU) Grant: Award $1,500   **Spring 2011 – 2012**
Lynch, Christopher (Principal), McKenzie, Frederic (Supporting), "Research Experience for Undergraduates (REU) Grant," Sponsored by Old Dominion University - Undergraduate Research Program, Old Dominion University, $1,500.00. (January 2011 - May 2011).

The grant supported the project "Device and Method for Improved Pectus Carinatum Treatment." This research resulted in a device to improve the treatment process of Pectus Carinatum by incorporating continuous monitoring elements into the design of a chest brace used for treatment and providing a visual representation of the force applied by the brace to the patient to better

inform physicians of when the brace needed to be tightened and the magnitude of the adjustment.

GRANTS AWARDED AS CO-PI

Gore, Ross (Principal), Shull, John (Co-Principle), Nielsen, Alex (Co-Principle), Jordan, Craig (Co-Principle), Lynch, Christopher (Co-Principle), Aggarwal, Priyanka (Co-Principal). "IRAD: Digital Neighborhood", Sponsored by ODU, State, $476,800. (June 1, 2021 – December 31, 2022).

Jordan, Craig (Principal), Lynch, Christopher (Co-Principle), "UNOS Organ Donor Model – year 3," Sponsored by UNOS, Private, $140,701.00. (April 15, 2021 – April 14, 2022).

Ezell, Barry (Principal), Gore, Ross (Co-Principle), Lynch, Christopher (Co-Principle), "Covid 19 Forecasting and Analytic Support to VDEM and VDH," Sponsored by the Virginia Department of Emergency Management (VDEM), State, $88,200. (January 01, 2021 – July 31, 2021).

Collins, Andrew (Principal), Lynch, Christopher (Co-Principal), Gore, Ross (Co-Principal), Leathrum, James (Co-Principal), Cotter, T. (Co-Principal), Huang, J. (Co-Principal), Draper, D. (Co-Principal), Smith, K. (Co-Principal), "Automation Tools and Analytics Courses for the Naval Shipyard," Sponsored by Naval Sea Systems Command, Private, $663,325.00. (September 28, 2019 – September 27, 2020)

Collins, Andrew (Principal), Lynch, Christopher (Co-Principal), Gore, Ross (Co-Principal), Barraco, Anthony (Co-Principal), Leathrum, James (Co-Principal), and Cotter, T. (Co-Principal), "Automation Tools and Analytics Courses for the Naval Shipyard," Sponsored by Naval Sea Systems Command, Private, $943,899.00. (September 28, 2018 – September 27, 2020).

Diallo, Saikou (Principal), Lynch, Christopher (Co-Principal), Barraco, Anthony (Co-Principal), "Modeling Religion: Simulating the Social Effects of Religion," Sponsored by BVARI, State, $299,447.00. (July 1, 2015 - June 30, 2018).

Diallo, Saikou (Principal), Lynch, Christopher (Co-Principal), Barraco, Anthony (Co-Principal), "TRADOC ARCIC Future Warfare Study Program," Sponsored by Cubic Applications Inc, Private, $173,428.00. (May 30, 2013 - September 30, 2013).

TEACHING EXPERIENCE – ACADEMIA

George Mason University, Fairfax, VA
Invited Lecturer – CSI 709/CSS 739: Verification and Validation of Models – Sept 20, 2020   **Fall 2020**
Conducted a lecture on the lightweight, feedback-driven runtime verification (LFV) methodology. Provided a historical background on Runtime Verification in M&S, an overview of the LFV to address existing shortcomings, and provided hands-on examples with implementing and interpreting runtime verification using the LFV of Discrete Event Simulations.

Old Dominion University, Norfolk, VA
Guest Lecturer – MSIM 601: Introduction to M&S – April 17, 2018   **Spring 2018**

Created a lecture on current challenges in Modeling and Simulation and grand challenge areas in other domains that Modeling and Simulation can assist in addressing. Lecture given by John Schull.

Old Dominion University, Norfolk, VA
Guest Lecturer – MSIM 601: Introduction to M&S – March 13, 2018   **Spring 2018**
Conducted a lecture on Multi-paradigm Modeling with a specific focus on its role within M&S, when to use multiple paradigms, and the challenges that arise in a multi-paradigm setting. Discussed a framework for building multi-paradigm models and discussed existing tools that facilitate building these types of models.

Old Dominion University, Norfolk, VA
Guest Lecturer – MSIM 601: Introduction to M&S – Feb 13, 2018   **Spring 2018**
Conducted a lecture on the CLOUDES Discrete Event Simulation (DES) platform. Discussed high level overview of DES and why and how CLOUDES was created to reduce the barriers of entry for building simulations. Focused on conceptual model building, data collection and scheduling tools, model construction and testing, and viewing results.

Old Dominion University, Norfolk, VA
Guest Lecturer – MSIM 601: Introduction to M&S – Nov 16, 2017   **Fall 2017**
Conducted a lecture on Multi-paradigm Modeling with a specific focus on its role within M&S, when to use multiple paradigms, and the challenges that arise in a multi-paradigm setting. Discussed a framework for building multi-paradigm models and discussed existing tools that facilitate building these types of models.

Old Dominion University, Norfolk, VA
Guest Lecturer – MSIM 601: Introduction to M&S – Jan 31, 2017   **Spring 2017**
Conducted a lecture entitled "Verification and Validation in M&S." Focus on the role of verification and validation (V&V) within M&S studies and the challenges that V&V seeks to address. Provide the application of three techniques to an existing model, including visual validation, ANOVA, and the V&V Calculator.

Old Dominion University, Norfolk, VA
Guest Lecturer – MSIM 601: Introduction to M&S – Nov 3, 2016   **Fall 2016**
Conducted an overview on Multi-paradigm Modeling with a specific focus on when to use multiple paradigms and the challenges that arise in a multi-paradigm setting. Discussed a framework for building multi-paradigm models and discussed tools that facilitate building these types of models.

Old Dominion University, Norfolk, VA
Guest Lecturer – MSIM 601: Introduction to M&S – Oct 20, 2016   **Fall 2016**
Conducted an overview and discussion on various Modeling and Simulation tools for designing conceptual models, implementing simulations in various modeling paradigms, and tools designed to collect data to be used within simulations.

Old Dominion University, Norfolk, VA
Guest Lecturer – MSIM 602: Simulation Fundamentals – Nov 24, 2015   **Fall 2015**
Conducted a lecture on Multi-paradigm Modeling with a specific focus on its role within M&S, when to use multiple paradigms, and the challenges that arise in a

multi-paradigm setting. Discussed a framework for building multi-paradigm models and discussed existing tools that facilitate building these types of models.

Old Dominion University, Norfolk, VA
Guest Lecturer – MSIM 602: Simulation Fundamentals – Sept 8, 2015   **Fall 2015**
Conducted a lecture on the use of conceptual models to support the model design process and how to transfer from a conceptual model into a simulation model. Talk revolved around the Modeling and Simulation – System Development Framework (MS-SDF).

Old Dominion University, Norfolk, VA
Guest Lecturer – MSIM 601: Introduction to M&S – Sept 3, 2015   **Fall 2015**
Conducted a lecture discussing various Modeling and Simulation tools for designing conceptual models, implementing simulations in various modeling paradigms, and tools designed to collect data to be used within simulations.

Old Dominion University, Norfolk, VA
Guest Lecturer – MSIM 601: Introduction to M&S – April 2015   **Spring 2015**
Conducted a lecture on multi-paradigm modeling and the value that conceptual modeling adds to implementing multi-paradigm models. Students were given exposure to The Brain and Enterprise Architect for building conceptual models and to AnyLogic for implementing multi-paradigm simulations. The session revolved around a use case exploring factors that contribute to individual's weight changes.

Old Dominion University, Norfolk, VA
Guest Lecturer – MSIM 601: Introduction to M&S – Jan 28, 2015   **Spring 2015**
Conducted an introductory discussion on Discrete Event Simulation (DES) and the CLOUDES simulation tool for building Discrete Event Simulations. The discussion included the creation of a reference model and a conceptual model of a toll booth and its implementation into a DES simulation.

Old Dominion University, Norfolk, VA
Guest Lecturer – MSIM 601: Introduction to M&S – Oct 1, 2014   **Fall 2014**
Conducted an introductory discussion on Discrete Event Simulation (DES) and the CLOUDES simulation tool for building Discrete Event Simulations. The discussion included the creation of a reference model and a conceptual model of a toll booth and its implementation into a DES simulation.

Old Dominion University, Norfolk, VA
Graduate Teaching Assistant Instructor – Discrete Event Simulation Lab MSIM 281   **Spring 2014**
A laboratory course designed to provide a hands-on introduction to the development and application of discrete event simulation. Topics included an introduction to several discrete event simulation tools, common modeling constructs, data gathering and input data modeling, design of simulation experiments, output data analysis, and verification and validation.

TEACHING EXPERIENCE – PROFESSIONAL & INDUSTRY TRAININGS

ODU - VMASC, Suffolk, VA
Data Modeling Prototype Bootcamp – NAVSEA Training, VMASC/Online   **August 10-14, 2020**
Participated in a week-long Data Modeling training bootcamp. This bootcamp is designed to teach advanced data modeling capabilities to NAVSEA personnel across the Naval shipyards. Training bootcamp focuses on data modeling, using the R statistical software, Python, data wrangling, missing data, and empirical model building. The overarching goal is to help NAVSEA facilitate a paradigm shift off using MS Excel towards a focus on concepts and the use of exploratory programming languages. This is the third bootcamp topic in a series of six courses.

ODU - VMASC, Suffolk, VA
Data Analytics Bootcamp – NAVSEA Training, Portsmouth, NH   **March 9-13, 2020**
Conducted a week-long data analytics bootcamp to NAVSEA analytics personnel. Course topics include how to use the R statistical software, descriptive and sampling statistics, machine learning, and visualization.

ODU - VMASC, Suffolk, VA
Predictive Analytics Bootcamp – NAVSEA Training, Honolulu, HI   **December 2-6, 2019**
Conducted a week-long predictive analytics bootcamp to NAVSEA personnel. Course topics include how to use the R statistical software, generalized linear models, time series forecasting, and advanced visualization techniques.

ODU - VMASC, Suffolk, VA
Predictive Analytics Bootcamp – NAVSEA Training, VMASC   **October 21-25, 2019**
Conducted a week-long predictive analytics bootcamp to NAVSEA personnel. Course topics include how to use the R statistical software, generalized linear models, time series forecasting, and advanced visualization techniques.

ODU - VMASC, Suffolk, VA
Predictive Analytics Prototype Bootcamp – NAVSEA Training, VMASC   **August 19-23, 2019**
Developed and presented a Generalized Linear Models module within a week-long Predictive Analytics training bootcamp. This bootcamp is designed to teach advanced predictive analytic capabilities to NAVSEA personnel across the Naval shipyards. Training bootcamp focuses on predictive analytic capabilities, such as time series forecasting, generalized linear models, deep learning, and visualization. The overarching goal is to help NAVSEA facilitate a paradigm shift off using MS Excel towards a focus on analytics concepts and the use of exploratory programming languages for analytics personnel. This is the second bootcamp topic in a series of six courses.

ODU - VMASC, Suffolk, VA
Data Analytics Bootcamp – NAVSEA Training, Seattle, WA   **May 20-24, 2019**
Conducted a week-long data analytics bootcamp to NAVSEA analytics personnel. Course topics include how to use the R statistical software, descriptive and sampling statistics, machine learning, and visualization.

ODU - VMASC, Suffolk, VA
Data Analytics Bootcamp – NAVSEA Training, Honolulu, HI   **March 11-15, 2019**
Conducted a week-long data analytics bootcamp to NAVSEA analytics personnel. Course topics include how to use the R statistical software, descriptive and sampling statistics, machine learning, and visualization.

ODU - VMASC, Suffolk, VA
Data Analytics Prototype Bootcamp – NAVSEA Training, VMASC   **December 3-7, 2018**
Developed and presented two statistics modules within a week-long Data Analytics training bootcamp designed to teach advanced data analytic capabilities to NAVSEA personnel across the Naval shipyards. Training bootcamp focuses on analytics capabilities, visualization, and interpretation of results. The goal is to help NAVSEA facilitate a paradigm shift off using MS Excel towards a focus on analytics concepts and the use of exploratory programming languages for analytics personnel. This is the first bootcamp topic in a series of six bootcamps.

ODU - VMASC, Suffolk, VA
Professional Training Session – Integrated Gaming System Controller Training   **April 7-11, 2014**
Developed and conducted a week-long training on the Integrated Gaming System (IGS) simulation platform to educate game controllers in (1) the proper implementation of simulation constructs and (2) how to elicit the needed requirements from game participants.

ODU - VMASC, Suffolk, VA
Professional Training Session – Integrated Gaming System Controller Training   **June 25-27, 2013**
Developed and conducted a three-day training on the Integrated Gaming System (IGS) simulation platform to educate game controllers on (1) how to properly implement simulation constructs and (2) how to elicit the needed requirements from game participants.

ADVISING EXPERIENCE

Old Dominion University - VMASC, Suffolk, VA
Taylor Copeland – Project LAUNCH, Summer Intern   **Summer 2013**
Mentored and advised the intern through the design and implementation of code for an engineering-based robot project.

Old Dominion University - VMASC, Suffolk, VA
Florian Tolk – Summer Intern   **Summer 2012**
Mentored and advised the intern through the design and implementation of code for an engineering-based robot project.

CONFERENCE SUPPORT

Track Co-chair for Simulation Education – 2021 Winter Simulation Conference
Program Committee Member – ACM SIGSPATIAL International Workshop on Geospatial Simulation (GeoSim 2020)
Program Committee Member – ACM SIGSPATIAL 2019 International Workshop on Geospatial Simulation
Proceedings Co-Chair for the 2019 Spring Simulation Conference
Co-Chair for the Student Colloquium and Demo Track of the 2019 Spring Simulation Conference
Program Committee Member – ACM SIGSPATIAL 2018 International Workshop on Geospatial Simulation
Proceedings Co-Editor for the 2018 Summer Simulation Multi-Conference (SCSC, SPECTS, and ICBGM)

Committee Member: Events Chair for Swarmfest 2017
Program Committee Member – Simulation Education Track of the 2017 Winter Simulation Conference

REVIEWER - JOURNAL

Journal of Medical Internet Research – June 2021
Journal of Medical Internet Research – June 2021
Simulation: Transaction of the Society for Modeling and Simulation International – June 2021
Journal of Medical Internet Research – June 2021
Advances in Environmental and Engineering Research – June 2021
Advances in Environmental and Engineering Research – May 2021
Software: Practice and Experience – May 2021
Journal of Medical Internet Research – May 2021
Advances in Environmental and Engineering Research – April 2021
Computers in Human Behavior Reports – March 2021
Software: Practice and Experience – Jan 2021
Population, Space and Place – Oct 2020
Simulation: Transaction of the Society for Modeling and Simulation International – Sept 2020
Journal of Defense Modeling and Simulation – Dec 2016
Simulation Modelling Practice and Theory – Sept 2016
Religion, Brain, & Behavior - 2015

REVIEWER - CONFERENCE

Winter Simulation Conference: Simulation Education Track – Dec 2021
ACM SIGSPATIAL 2020 International Workshop on Geospatial Simulation (GeoSim 2020)
Winter Simulation Conference: Simulation Education Track – Dec 2020
ACM SIGSPATIAL 2019 International Workshop on Geospatial Simulation (GeoSim 2019)
Summer Simulation Conference 2019 – Humans, Societies, and Artificial Agents (HSA) Track (SCSC'19)
Spring Simulation Conference 2019 – Annual Simulation Symposium (ANSS'19)
Winter Simulation Conference: Simulation Education Track – Dec 2018
ACM SIGSPATIAL 2018 International Workshop on Geospatial Simulation (GeoSim 2018)
Modeling and Simulation Visualization Capstone Conference 2018 (MSVCC 2018)
Spring Simulation Multi-Conference: Annual Simulation Symposium (ANSS'18)
Winter Simulation Conference: Simulation Education Track – Dec 2017
Spring Simulation Multi-Conference: Annual Simulation Symposium (ANSS'17)
Spring Simulation Multi-Conference: Annual Simulation Symposium (ANSS'16)
wwwAfrica2016: A special event of www2016
Spring Simulation Multi-Conference - Annual Simulation Symposium (ANSS'15)
2015 Modeling and Simulation Student Capstone Conference
Spring Simulation Multi-Conference 2014 - Military Modeling and Simulation (MMS) Track
Spring Simulation Multi-Conference 2013 - Military Modeling and Simulation (MMS) Track

REVIEWER – EDITED BOOK

Human Simulation: Perspectives, Insights, and Applications, by Diallo, Wildman, Shults, and Tolk – June 2018
Emergent Behavior in Complex Systems Engineering: A M&S Approach by Mittal, Diallo, and Tolk – Aug 2017

AWARDS

Certificate of Outstanding Contribution for contributions in Reviewing for the Journal Simulation Modelling Practice
    and Theory   **October 2016**

Certificate of Reviewing made for the Journal Simulation Modelling Practice and Theory   **September 2016**
Certificate of Appreciation from the Society for Modeling and Simulation International for contributions to the 2015
   Spring Simulation Multi-Conference   **Spring 2015**
MS&V Student Capstone Conference 2013 – Best Track Presentation for Homeland Security and Military
                                                                                                                                Spring 2013
Graduate Teaching Assistant Instructors' Institute Certificate at Old Dominion University   **August 2013**
Certificate of Excellence in Undergraduate Research from ODU   **Fall 2012**
Recipient of the Research Experience for Undergraduates (REU) Grant from ODU   **Spring 2012**

PUBLICATIONS – DISSERTATION

Lynch, C. J. (2019). A Lightweight, Feedback-Driven Runtime Verification Methodology (Doctoral Dissertation). Old Dominion University Theses: Modeling and Simulation. College of Engineering and Technology: Norfolk, VA, United States of America, 1-323. ProQuest Number: 22619686.

PUBLICATIONS – THESIS

Lynch, C. J. (2012). A Multi-Paradigm Modeling Framework for Modeling and Simulating Problem Situations (Master's Thesis). Old Dominion University Theses: Modeling and Simulation. College of Engineering and Technology: Norfolk, VA, United States of America, 1-133. OCLC: http://www.worldcat.org/oclc/827224773.

PUBLICATIONS – JOURNAL

Lynch, C. J., & Gore, R. (2021). Short-Range Forecasting of COVID-19 During Early Onset at County, Health District, and State Geographic Levels Using Seven Methods: Comparative Forecasting Study. *J Med Internet Res, 23*(3), e24925. DOI: 10.2196/24925.

Lynch, C. J., & Gore, R. (2021). Application of one-, three-, and seven-day forecasts during early onset on the COVID-19 epidemic dataset using moving average, autoregressive, autoregressive moving average, autoregressive integrated moving average, and naïve forecasting methods. *Data in Brief, 35*(), 106759. DOI: 10.1016/j.dib.2021.106759.

Lynch, C. J., Diallo, S., Kavak, H., & Padilla, J. (2020). A content analysis-based approach to explore simulation verification and identify its current challenges. *PLoS One, 15*(5), e0232929. DOI: 10.1371/journal.pone.0232929.

Shults, F. L., Wildman, W. J., Lane, J. E., **Lynch, C. J.**, & Diallo, S. D. (2018). Multiple Axialities: A Computational Model of the Axial Age. *Journal of Cognition and Culture*, *18*(5), 537-564. DOI: 10.1163/15685373-12340043. *Special Issue of Computer Modeling and Simulation*.

Wood, C., Diallo, S. Y., Gore, R., & **Lynch, C. J.** (2018). Trance, Dissociation, and Shamanism: A Cross-Cultural Model. *Journal of Cognition and Culture*, *18*(5), 508-536. DOI: 10.1163/15685373-12340042. *Special Issue of Computer Modeling and Simulation*.

Shults, F. L., Gore, R., Wildman, W. J., **Lynch, C. J.**, Lane, J. E., & Toft, M. D. (2018). A Generative Model of the Mutual Escalation of Anxiety Between Religious Groups. *Journal of Artificial Societies and Social Simulation*, *21*(4), 1-25. DOI: 10.18564/jasss.3840.

Padilla J. J., Kavak H., **Lynch C. J.**, Gore R.J., & Diallo S. Y. (2018) Temporal and spatiotemporal investigation of tourist attraction visit sentiment on Twitter. *PLOS ONE 13*(6): e0198857. https://doi.org/10.1371/journal.pone.0198857.

Shults, F. L., Lane, J. E., Wildman, W. J., Diallo, S. Y., **Lynch, C. J.**, & Gore, R. (2018). Modeling Terror Management Theory: Computer simulations of the impact of mortality salience on religiosity. *Religion, Brain, and Behavior: Special Issue: Terror Management Theory*, *8*(1), 77-100*.* Doi: http://dx.doi.org/10.1080/2153599X.2016.1238846.

Padilla, J., Diallo, S., **Lynch, C. J.,** and Gore, R. (2018) Observations on the practice and profession of Modeling and Simulation: A survey approach. *SIMULATION Transactions for the Society for Modeling and Simulation International*, 94(6), 493-506, DOI: 10.1177/0037549717737159.

Gore, R., Diallo, S., **Lynch, C. J.**, & Padillla, J. (2017). Augmenting bottom-up metamodels with predicates. *Journal of Artificial Societies and Social Simulation*, *20*(1), 1-20, doi: 10.18564/jasss.3240.

Gore, R. J., **Lynch, C. J.**, & Kavak, H. (2016). Applying statistical debugging for enhanced trace validation of agent-based models. *Simulation: Transactions of the Society for Modeling and Simulation International*, 93(4), 273-284, doi: 10.1177/0037549716659707. *Special Issue of SIMULATION: Modeling and Simulation in the Era of Big Data and Cloud Computing: Theory, Framework, and Tools*.

Diallo, S. Y., Gore, R., **Lynch, C. J.**, & Padilla, J. J. (2016). Formal methods, statistical debugging and exploratory analysis in support of system development: Towards a verification and validation calculator tool. *International Journal of Modeling, Simulation, and Scientific Computing*, *7*(1), 1-22, doi: 10.1142/S1793962316410014.

Diallo, S. Y., **Lynch, C. J.**, Gore, R., & Padilla, J. J. (2016). Identifying key papers within a journal via network centrality measures. *Scientometrics*, *107*(3), 1-16, doi: 10.1007/s11192-016-1891-8.

Diallo, S. Y., **Lynch, C. J.**, Gore, R., & Padilla, J. J. (2016). Emergent behavior identification within an agent-based model of the Ballistic Missile Defense System using statistical debugging. *The Journal of Defense Modeling and Simulation: Applications, Methodology, Technology*, *13*(3), 275-289, doi: 10.1177/1548512915621973.

Diallo, S. Y., Gore, R., Padilla, J. J., Kavak, H., & **Lynch, C. J.** (2015). Towards a World Wide Web of Simulation. *The Journal of Defense Modeling and Simulation: Applications, Methodology, Technology*, 14(2), 159-170, doi:10.1177/1548512915621974. *Special Issue: Modeling & Simulation of Systems*.

Diallo, S. Y., Padilla, J. J., Papelis, Y., Gore, R., & **Lynch, C. J.** (2015). Content analysis to classify and compare Live, Virtual, Constructive simulations and System of Systems. *The Journal of Defense Modeling and Simulation: Applications, Methodology, Technology*, *13*(4), 367-380, doi:10.1177/1548512915621972. *Special Issue: Modeling & Simulation of Systems*.

Diallo, S. Y., Gore, R. J., Barraco, A., Padilla, J. J., & **Lynch, C.** (2015). Quantitative performance metrics for evaluation and comparison of middleware interoperability products. *The Journal of Defense Modeling and Simulation: Applications, Methodology, Technology*, *13*(2): 161-169, doi:10.1177/1548512915570143.

Diallo, S. Y., Gore, R. J., Padilla, J. J., & **Lynch, C. J.** (2015). An overview of modeling and simulation using content analysis. *Scientometrics*, *103*(3), 977-1002, doi: 10.1007/s11192-015-1578-6.

PUBLICATIONS – CONFERENCE

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