**Peter Foytik**

Virginia Modeling, Analysis and Simulation Center (VMASC)

1030 University Blvd, Suffolk, Virginia, 23435

Phone: 757-638-6316

[pfoytik@odu.edu](mailto:pfoytik@odu.edu)

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| **Education:** | **MS, Modeling and Simulation,** Old Dominion University, Norfolk, VA (May 2013)  **BS, Computer Science**, Christopher Newport University, Newport News, VA (December 2005) |
| **Computer and Software Skills:** | * **Cyber Security:** Researched and developed new technology for Cyber Security Applications utilizing custom or open sourced tools such as network simulator (NS3) and Hyperledger Fabric Blockchain. * **Transportation Modeling:** Proven expertise in the use and development of transportation models. Exceptionally expert with the Citilabs, PTV, and Caliper transportation suites with additional experience using other modeling tools such as Transims and other open source tools. * **Web Service:** Developed web services using .Net as well as JAVA. Designed and implemented a web portal and information transfer client over local networks or internet with backend databases. * **Executable Architectures:** Experienced with Department of Defense Architecture Framework architecture modeling including *Popkin* software and modeling architectures using the executable architecture tool CORE. * **Programming:** Extensive experience with C++, C, C#, Java, and Java script. Also with PHP, HTML, and Assembly. * **Object Orient design:** Experience with the Unified Modeling Language and UML Diagrams. |
| **Work Experience:** | **VMASC Project Scientist, September 05 – Present:**   * Implementing Blockchain solutions for cyber security within Internet of Things applications (Focused on a simulation platform to test solutions) * Developed CCAM dashboard: lead the user interface development that processed data dynamically in real-time with Microsoft SQL database * Developed Origin Destination Matrix Estimation tool for calibration of Virginia Beach Microscopic Simulation * Contributed to the development of the Virginia Beach Regional Microscopic Simulation using Transmodeler * Lead developer to add enhancements to Real Time Evacuation Planning Model (RTEPM) * Contributed to the development of freight model to study truck impacts on proposed 460 expansion of Virginia. * Developed a genetic algorithm to find better parameters for volume delay functions in the Hampton roads travel demand model * Developed and implemented the model used for the accident and incident analysis in the Hampton Roads Six Transportation Alternatives project using mesoscopic modeling techniques. * Lead implementer of the Hampton Roads evacuation model funded by Virginia Department of Emergency Management (VDEM). This model was developed in CUBE and utilized the Avenue module to create a mesoscopic simulation that displayed the effectiveness of VDOT’s evacuation plan. * Lead developer and designer of the VERTEX tool, a project funded by VDEM. The VERTEX tool was developed to communicate with the emergency management software webEOC to manually and automatically insert events that would occur through a simulation of a catastrophic scenario. * Contributed to the design and implementation of the NATO Pathfinder project, an online web portal used to hold data of simulation tools, strategies, and other resources in many formats. The portal was developed to provide access through Web Services to provide the stored data in formats requested by the users, allowing integration of simulations for multiple partner nations. * Teacher assistant for a one week course on Operational Architecture Certificate Program for US Army Training and Doctrine Command (TRADOC). In charge of setting up and maintaining the lab and assisted instructor in helping students with creating UML and Object Process Methodology (OPM) diagrams. * Assisted in VMASC research and development of a verification and validation (V&V) program in support of Test and Training Enabled Architecture (TENA) technologies being configured at the joint advanced training technology laboratory (JATTL) and their subsequent integration into the Joint Force Trainer Toolkit. |
| **Publications:** | **Peer Reviewed papers as Primary Author**   * Foytik, Peter, and R. Michael Robinson. "Weighting critical infrastructure dependencies to facilitate evacuations." *International journal of disaster risk reduction* 31 (2018): 1199-1206. * Foytik, Peter, Craig Jordan, and R. Michael Robinson. "Exploring simulation based dynamic traffic assignment with a large-scale microscopic traffic simulation model."*Proceedings of the 50th Annual Simulation Symposium*. Society for Computer Simulation International, 2017. * Foytik P.; Robinson RM. “Integrating Truck Emissions Cost in Traffic Assignment”, Transportation Research Record: Journal of the Transportation Research Board 2015. * Foytik P.; Cetin M.; Robinson RM. “Calibration of BPR function Based on Link Counts and Its Sensitivity to Varying Demand”, Transportation Research Board 2013. * Foytik, Peter; Cetin, M. “Using Genetic Algorithms to Estimate the Parameters of Volume Delay Functions”, Transportation Research Board 90th Annual Meeting 2011. * Foytik, Peter; Robinson, M. “Implementing and Simulating Dynamic Traffic Assignment with Intelligent Transportation Systems in Cube Avenue”, 2010 * Foytik, Peter, “Implementing a Mesoscopic Transportation Evacuation Model”, VMASC Capstone Conference 2009, Awarded The Gene Newman Award for Excellence in Modeling and Simulation Research.   **Peer Reviewed Papers as Co-Author**   * Robinson, R. Michael, et al. "Modeling the impact of traffic incidents during hurricane evacuations using a large scale microsimulation."*International journal of disaster risk reduction* 31 (2018): 1159-1165. * Tosh, Deepak, et al. "CloudPoS: A Proof-of-Stake Consensus Design for Blockchain Integrated Cloud."*2018 IEEE 11th International Conference on Cloud Computing (CLOUD)*. IEEE, 2018. * Liang, Xueping, et al. "Towards a Trusted and Privacy Preserving Membership Service in Distributed Ledger Using Intel Software Guard Extensions."*International Conference on Information and Communications Security*. Springer, Cham, 2017. * Robinson, R. Michael, Peter Foytik, and Craig Jordan. Review and Analysis of User Inputs to Online Evacuation Modeling Tool. No. 17-06460.2017 * Jordan, Craig, et al. Development of a Future Year Large-Scale Microscopic Traffic Simulation Model. No. 17-05850. 2017 * Frydenlund F.; Collins AJ.; Jordan CA.; Foytik P.; Robinson RM. “When the money runs dry: a system dynamics approach to critical infrastructure investment”, Proceedings of the 49th Annual Simulation Symposium, 8, 2016. * Collins A.; Foytik P.; Frydenlund F.; Robinson R.; Jordan C. “Generic Incident Model for Investigating Traffic Incident Impacts on Evacuation Times in Large-Scale Emergencies”, Transportation Research Record: Journal of the Transportation Research Board 2014. * Robinson RM.; Foytik P. “Optimizing Freight Routes and Modes to Minimize Environmental Impacts: Integrating Truck Emissions Cost in Traffic Assignment”, 2014. * Ezell BC.; Robinson RM.; Foytik P.; Jordan C.; Flanagan D. “Cyber risk to transportation, industrial control systems, and traffic signal controllers”, Environment Systems and Decisions 33 (4), 508-516 2013. * Collins AJ.; Robinson RM.; Jordan CA.; Foytik P.; Ezell BC. “Generic incident model for use in large-scale evacuation simulations”, Technologies for Homeland Security (HST), 2013 IEEE International Conference. * Duanmu J.; Foytik P.; Khattak A.; Robinson R. “Distribution Analysis of Freight Transportation with Gravity Model and Genetic Algorithm”, Transportation Research Record: Journal of the Transportation Research Board 2012. * Cetin M.; Foytik P; Son S.; Khattak AJ.; Robinson RM.; Lee J. “Calibration of Volume-Delay Functions for Traffic Assignment Models”, Transportation Research Board 91st Annual Meeting 2012. * Jordan, CA; Foytik, P.; Cetin M. “Investigating Benefits of Vehicle-to-Vehicle Communications in Emergency Response: Conceptual Methodology”, Transportation Research Board 91st Annual Meeting 2012. * Robinson, Robert Michael; Khattak, Asad J; Sokolowski, John A; **Foytik, Peter** ; Wang, Xin, “Role of Traffic Incidents in Hampton Roads Hurricane Evacuations”, Transportation Research Board Conference 2009. |
| **Security Clearance:** | * Secret Clearance |