

Joseph A. Walton

Ph.D. Student in Engineering Management

Department of Engineering Management and Systems Engineering
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Education

- 2025 – Present **Ph.D. in Engineering Management**
Missouri University of Science and Technology
Advisor: Dr. Gabriel Nicolosi
- 2018 – 2023 **B.S. in Engineering Management, Industrial Engineering Emphasis**
Missouri University of Science and Technology

Research Experience

- 2025 – Present **Graduate Researcher**
Missouri University of Science and Technology, Rolla, MO
- Develop discrete-event simulation models for stochastic service systems, including dynamic service control in M/M/1 queues and machine interference systems.
 - Formulate average-reward Markov decision models for service-rate control under congestion and operating-cost tradeoffs.
 - Evaluate reinforcement learning policies against analytical and dynamic-programming-based benchmark policies.
 - Analyze convergence, sampling efficiency, policy quality, and regret-based performance across reproducible simulation experiments.

Publications and Manuscripts

Conference Proceedings

1. **Walton, J.** and Nicolosi, G. *Empirical Evaluation of Policy-Based Reinforcement Learning for Dynamic Service Control in an M/M/1 Queue*. Accepted for the Proceedings of the IISE Annual Conference and Expo, 2026.

Working Papers and Manuscripts

1. **Walton, J.** and Nicolosi, G. *Speed-Dependent Failures in Machine Interference Systems: Balancing Energy, Congestion, and Machine Availability*. Working manuscript.
2. Das, L., **Walton, J.**, and Nicolosi, G. *A Two-Stage Co-Evolutionary Matheuristic for Spatio-Temporal Timetabling*. Working manuscript.

Conference Talks and Poster Presentations

Talks

1. **Walton, J.**[†], Nicolosi, G. *Empirical Evaluation of Policy-Based Reinforcement Learning for Dynamic Service Control in an M/M/1 Queue*. IISE Annual Conference and Expo, Arlington, TX. May 2026.

Poster Presentations

1. **Walton, J.**[†], Nicolosi, G. *Empirical Evaluation of Policy-Based Reinforcement Learning for Dynamic Service Control in an M/M/1 Queue*. Miners Solving for Tomorrow Conference, Rolla, MO. October 2024.

Professional Experience

- 2024 – 2025* **Process Improvement Manager**
Ardagh Glass Packaging, Pevely, MO
- Oversaw all improvement projects, operations reporting, and statistical analysis.
 - **100% report automation; \$380,000 in 2024 operating cost reduction.**
 - Tools – SQL; Power BI (DAX + M); Python; JMP.
 - Conducted multiple trainings on Lean Six Sigma problem-solving methodologies.
 - 35 employees trained.
 - Facilitated integration of AI-driven anomaly detection in furnace operations.
 - Implemented a predictive equation to describe optimal production days.
- 2023 – 2024* **Process Improvement Co-Op**
Ardagh Glass Packaging, Remote
- Provided project assistance during Process Improvement Manager vacancy.
 - Supported project development, operations reporting, and data analysis.
 - 20+ SQL extraction scripts; 3 reports automated.
 - Constructed the 2024 improvement plan and managed associated projects.
- May – Aug 2023* **Engineering Intern, Quality Management**
Reynolds American, Winston-Salem, NC
- Tasked with data acquisition and analysis for the quality department.
 - Developed quality data repository, laying a foundation for future reports.
 - Enhanced a behavioral observation system, allowing for data-driven decisions.
- 2021 – 2022* **Operational Excellence Group Co-Op**
Ardagh Glass Packaging, Fishers, IN
- Designed and deployed live operational performance kiosks for shop floors.
 - Successfully reduced reaction time to out-of-spec equipment by 51%.
 - Trained 100% of operators on dashboard navigation and expected reaction.
 - Responsible for all JMP add-in development.
 - Automated statistical analysis processes in JMP through add-ins.
 - Trained continuous improvement managers on scripting best practices.

Technical Skills

Programming	Python · SQL · Julia · MATLAB · R
Data & Analytics	pandas · NumPy · matplotlib · Power BI · Excel · Power Query
Machine Learning	PyTorch · TensorFlow/Keras · reinforcement learning · supervised learning
Simulation	discrete-event simulation · model validation · performance evaluation
Operations Research	queueing systems · dynamic programming · mathematical optimization
Quality	Lean Six Sigma · SPC · 5S · root cause analysis · Minitab · JMP

Honors, Awards, and Service

- 2025 – Present* **Kummer Innovation and Entrepreneurship Doctoral Fellow**
Missouri University of Science and Technology
- 2024 – Present* **Operations Alumni Advisor**
Pi Kappa Alpha
- 2023* **First Place, International Case Study Team**
American Society of Engineering Management