

Tushar Lone

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Summary

Ph.D. scholar in Computer Science and Engineering at IIT Goa (expected 2026), advised by Dr. Neha Karanjkar, with over 4 years of experience in modeling, simulation, and optimization. Lead developer of **SupplyNetPy**, an open-source Python library for modeling and simulating supply chain networks using Discrete Event Simulation (DES). Strong background in Python programming, SimPy, Neural Networks, Graph Neural Networks, and simulation-based optimization.

Education

Indian Institute of Technology Goa *2020 - present (expected 2026)*
Ph.D. in Computer Science and Engineering
Advisor: Dr. Neha Karanjkar

National Institute of Technology Goa *2014 – 2016*
M. Tech. in Computer Science and Engineering, First Class with Distinction
Guide: Dr. Damodar Reddy Edla

SGGSIE&T Nanded, Maharashtra *2009 – 2013*
B. Tech. in Information Technology, First Class

Technical Skills

- **Languages:** Python, C++
- **Libraries/Tools:** SimPy, Scikit-learn, TensorFlow
- **Software:** Git, Matlab, Jupyter, AnyLogistix

Research & Projects

SupplyNetPy – An Open-Source Supply Chain Simulation Library *2023–Present*
Lead Developer (GitHub) (Docs)
A modular Python library built on SimPy that provides configurable components — suppliers, manufacturers, distributors, and demand points — for assembling custom supply chain networks. Supports configurable inventory and replenishment policies, and simulation-based evaluation of performance metrics such as throughput and profit.

InventOpt – Metamodel-based Simulation Optimization (GitHub)
Developed a five-node supply chain simulation (SimPy) to optimize inventory replenishment policy parameters (s, S) for minimum cost and maximum net profit. Used Gaussian Process Regression and Neural Network metamodels to exploit the input–output relationship, accelerating the optimization process and making local optimization methods applicable. Basis of the SIMULTECH 2023 paper.

Publications

Full list on Google Scholar.

Conference

- Lone, T. (2024). *Development of an open-source library for supply chain modeling and optimization*. In Proceedings of the 38th ACM SIGSIM Conference on Principles of Advanced Discrete Simulation (pp. 73-74).

- Lone, T., P. Lekshmi, & Karanjkar, N. (2023). *An Open Tool-Set for Simulation, Design-Space Exploration and Optimization of Supply Chains and Inventory Problems*. In Proceedings of the 13th International Conference on Simulation and Modeling Methodologies, Technologies and Applications (SIMULTECH), ISBN 978-989-758-668-2, ISSN 2184-2841, pp. 432-439.
- P. Lekshmi, Lone, T., & Karanjkar, N. (2023). *DataFITR: An Open, Guided Input Modeling Tool for Creating Simulation-Based Digital Twins*. In Proceedings of the 13th International Conference on Simulation and Modeling Methodologies, Technologies and Applications (SIMULTECH), ISBN 978-989-758-668-2, ISSN 2184-2841, pp. 279-286.

Journal

- Edla, D.R., Lone, T., Tapas, N., & Kuppili, V. (2020). *Analysis of high dimensional brain data using prototype-based fuzzy clustering*. Clinical Epidemiology and Global Health, 8(4), pp. 1110-1118.
- Tripathi, D., Sharma, Y., Lone, T., & Dwivedi, S. (2018). *Credit card fraud detection using local outlier factor*. International Journal of Pure and Applied Mathematics, 118(7), pp. 229-234.
- Tapas, N., Lone, T., Reddy, D., & Kuppili, V. (2017). *Prediction of cardiac arrest recurrence using ensemble classifiers*. Sādhanā, 42(7), pp. 1135-1141.

Experience

Assistant Professor (TEQIP-III), Samrat Ashok Technological Institute, Vidisha, MP Aug 2018 – Aug 2020

Assistant Professor (TEQIP-III), University College of Engineering and Technology, Bikaner, Rajasthan Jan 2018 – Aug 2018

Front End Developer, Frugal Product Services LLP, Hyderabad, Telangana Jan 2017 – Sep 2017

Teaching & Leadership

- Teaching Assistant at IIT Goa (2020–Present): Introduction to Computing, Computer Networks, Probability Theory, Software Tools, Algorithm Design, and Digital Systems Design.
- Mentored undergraduate interns contributing to SupplyNetPy.

Achievements

- Travel grant from ACM for attending the 38th ACM SIGSIM Conference on Principles of Advanced Discrete Simulation (2024).
- Travel grant from IIT Bombay for attending IndoML 2023 (4th Indian Symposium on Machine Learning), IIT Bombay.

Interests

Simulation Modeling, Discrete Event Simulation, Digital Twins, Supply Chain Management, Operations Research, and Simulation-based Optimization.