Dr. LOHITHAKSHA M MAIYAR

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Teaching Interests

Logistics and Supply Chain Management, Operations Management, Operations Research, and Game Theory.

Key Research Skills

Research Areas: Supply Chain Network Modeling; Operations Research Applications in Manufacturing and Logistics Systems, Sustainable Freight Transportation and Food supply chains.

Research Methodologies: Operation Research based Mathematical Modelling; Data mining techniques – Clustering Analysis, Regression Analysis, Neural network; Multi-objective algorithms; Meta-heuristic techniques; Evolutionary algorithms; Data driven modelling, Multi criteria decision making.

Research Publications

Journal papers published

➢ Olusayo Obajemu, Mahdi Mahfouf, **Lohithaksha M. Maiyar**, David Allerton, Michal Weiszer, and Jun Chen, "Four (4)–Dimensional Trajectory Generation and Execution Using a High Fidelity Aircraft Model" in **Engineering,** DOI**:** https://doi.org/10.1016/j.eng.2021.01.009**, (Impact Factor: 6.495)**

➢ **Lohithaksha M Maiyar,** Jitesh J Thakkar. "Environmentally conscious logistics planning for food grain industry considering wastages employing multi objective hybrid particle swarm optimization", **Transportation Research: Part E,** DOI: https://doi.org/10.1016/j.tre.2019.05.006 (2019) **(Impact factor – 4.690)**

➢ **Lohithaksha M Maiyar**, Jitesh J Thakkar "Modelling and analysis of intermodal food grain transportation considering hub disruption towards sustainability" in **International Journal of Production Economics,** DOI: https://doi.org/10.1016/j.ijpe.2018.07.021 **(Impact Factor: 5.134)**

➢ **Lohithaksha M Maiyar,** Jitesh J Thakkar. "Robust optimisation of sustainable food grain transportation with uncertain supply and intentional disruptions", **International Journal**

of Production Research, DOI: https://doi.org/10.1080/00207543.2019.1656836 (2019)**, (Impact factor – 4.577)**

➢ **Lohithaksha M Maiyar,** Sangje Cho, Manoj Kumar Tiwari, Klaus-Dieter Thoben, Dimitris Kiritsis. "Optimising online review inspired product attribute classification using self-learning particle swarm based Bayesian learning approach", **International Journal of Production Research,** DOI: https://doi.org/10.1080/00207543.2018.1535724 (2018) **(Impact factor – 4.577)**

➢ **Lohithaksha M Maiyar**, and Jitesh J Thakkar. "A combined tactical and operational deterministic food grain transportation model: Particle swarm based optimization approach" in **Computers & Industrial Engineering,** (2017). DOI: https://doi.org/10.1016/j.cie.2017.05.023, 110 30-42 **(Impact Factor: 4.135)**

➢ **Lohithaksha M Maiyar**, Sube Singh, Vittal Prabhu, and Manoj Kumar Tiwari. "An optimization based part segregation algorithm for additive manufacturing assembly with area, shape and height restrictions" in **International Journal of Computer Integrated Manufacturing,** DOI: https://doi.org/10.1080/0951192X.2019.1610577 (2019) (**Impact factor – 2.861**)

➢ Sonal H. Singh, **Lohithaksha M. Maiyar**, and Bhaskar Bhowmick. "Assessing the appropriate grassroots technological innovation for sustainable development" in **Technology Analysis & Strategic Management,** (2019). DOI: https://doi.org/10.1080/09537325.2019.1646420 **(Impact Factor: 1.867)**

➢ R Ramanujam, **Lohithaksha M. Maiyar,** K Venkatesan, and M Vasan. "Multi-response optimization using ANOVA and desirability function analysis: A case study in end milling of Inconel alloy" in **ARPN Journal of Engineering and Applied Sciences,** (2014).

Conference papers

➢ **Lohithaksha M Maiyar**, J J Thakkar, A Awasthi, and M K Tiwari. "Development of an effective cost minimization model for food grain shipments.' " *IFAC-PapersOnLine* 48.3 (2015): 881-886.
➢ **Lohithaksha M Maiyar,** R Ramanujam**,** K Venkatesan, J Jerald "Optimization of machining parameters for end milling of Inconel 718 super alloy using Taguchi based grey relational analysis" Procedia Engineering, 64 (2013):1276-1282**.**
➢ **Lohithaksha M Maiyar**, J J Thakkar, "Food grain supply network optimization considering wastages – A swarm intelligence based approach", in IISE Annual Conference and Expo, Orlando, Florida, May 19-22, 2018**.**
➢ **Lohithaksha M Maiyar**, J J Thakkar, M K Tiwari. (2015) "A novel multi-period modeling approach for efficient food-grain transportation considering deterministic demand", Society of Operations Management Conference, Indian Institute of Management Kolkata, India**.**

- ➤ **Lohithaksha M Maiyar**, J Jerald, "Integration of Process Planning and Scheduling using Hybrid Quantum Inspired Immune Algorithm", National Conference on Advanced Materials and Processing Technologies, 17th-18th Feb, 2012.
- ➤ O Obajemu, M Mahfouf, and **Lohithaksha M Maiyar,** C He, D J Allerton, J Chen, M Weiszer, 2020. Fuzzy Modelling of Fuel Consumptions and Emissions for Optimal Navigation of a BOEING-747 Aircraft, IEEE Aerospace Conference, Montana, Canada.
- ➤ **Lohithaksha M Maiyar**, Ramakrishnan Ramanathan, Lakshmi Swamy. 2021. "An optimisation model for cost effective integration of transportation network design with quality control to reduce fresh food wastage", EurOMA Conference 2021, 5th-7th July, 2021
- ➤ **Lohithaksha M Maiyar**, Ramakrishnan Ramanathan, Lakshmi Swamy. 2021. "A theoretical sustainability model on using IoT sensors and cloud systems for reducing food waste and emissions in the fresh food sector", The Logistics and Research Network Annual Conference, Sep 8th -10th, 2021.

Teaching and Research Experience

Research Fellow at **University of Bedfordshire, UK** – March 2020 – Present
- Contributed to the achievement of project deliverables of the EU Interreg project REAMIT in collaboration with University of Nantes, Ulster University, University College Dublin, and Nottingham Trent University.
- Leading the work package on "Design and launch of Big data hub interface for receiving and broadcasting of sensor data" for fresh food quality monitoring and prediction. Played lead role in transfer of sensor data from web-based dashboard to on-premise big data server. Experienced in in-house big data server hosting including procurement, licensing and software platform development.
- Established contacts with sensor manufacturing and distributor companies across UK and North West Europe region for procuring and collating information on best choice of sensors for tracking quality of fresh food under diverse practical conditions.
- Design of alternative routing strategies for transport of less quality fresh food products.
- Development of multi-objective mixed integer linear models to conduct simultaneous minimization of transportation time and cost for fresh food supply chain
- Preparing timely steering committee reports/manuscripts/conference papers containing outputs/results inspired out of successful execution of REAMIT project.
- Preparation of project proposals to obtain EU funds on pandemic proof supply chains.
- Acted as academic consultant for implementation of block chain technology in Agri-business based SME in the UK.
- Acted as PhD Phase 2 Viva Voice examiner on the thesis titled "Role of TQM in improving organizational performance - Case study of Jordan".

Research Associate at **University of Sheffield, UK** - January 2019 – February 2020
- Contributed to the achievement of project deliverables of the EPSRC project TRANSIT in collaboration with Cranfield University, Queen Mary University of London, and University of Sterling.

- Development of simulation models embedded with optimal control systems with focus to reduce emissions and fuel consumption
- Contributed to the development of real time state-space dynamical models for Boeing 747 aircraft taxiing, designing cockpit display and their integration with the distributed electronic flight simulator system.
- Development of multi-objective models to conduct simultaneous minimization of emissions and fuel consumption.

Research Scholar at **Indian Institute of Technology Kharagpur, India** - January 2014 – January 2019

- Worked in the area of sustainable food grain transportation, intermodal logistics, multimodal operations and assembly based design of additive manufacturing system.
- Experienced in building mathematical models and employing soft-computing methods, artificial intelligence based techniques and heuristic procedures in the domain of food grain logistics, manufacturing, aerospace and online retail markets.
- Incorporated environmental and social sustainability considerations into supply chain network design formulations
- Developed different metaheuristic techniques, and heuristics for solving complex problems in the domain of food grain logistics and manufacturing domains.
- Worked on a multi-echelon supply chain management problem for multiple product case and developed tailored heuristic to solve large problem instances.

Research Intern at **Ecole Polytechnique Federale de Lausanne, Switzerland**
(Feb 2016 - May 2017, 4 months)

- Performed computational and mathematical model based research in the product life cycle management domain.
- Incorporated Bayesian learning approach for facilitating online customer review based product attribute ordering for fashion market
- Developed Ontology for industry use cases consisting of Hightech and Textile goods.

Assistant Professor at **Vellore Institute of Technology, Vellore, India** (June 2012- December 2013)

- Handled courses (Operations Research) taught for B.Tech, and M.Tech students
- Delivered courses in the project based learning approach and supervised students for carrying out projects that satisfied the requirements of industry and academia by ensuring the blend of theory and practice.
- Participated in unbiased evaluation of answer scripts of students' responses to mid-semester and end-semester examinations.
- Involved in developing factor level recommendations for reducing the surface roughness and material removal rate simultaneously during CNC machining of Inconel-718 super alloy using grey relational analysis.
- Conducted a survey of Multi-criteria decision making techniques for identifying the effect of different factors while machining Inconel 718 super alloy

Software Knowledge

- MATLAB, ILOG CPLEX Concert, LINGO, GAMS, SAS, SigmaXL, SPSS, Minitab, Frontier Analysis, MSSQL server
- C, C++, Java Eclipse (Programming language), SQL

Academic Qualifications

Degree	Board / University	Year	CGPA/Percentage
PhD (Industrial and Systems Engineering)	Indian Institute of Technology Kharagpur	2014-2019	8.5/10
M. Tech. (Industrial Engineering)	National Institute of Technology, Tiruchirappalli	2010-2012	8.95/10
B. Tech. (Mechanical Engineering)	Jawaharlal Nehru Technological University, Hyderabad	2006-2010	72.58 %

Funded Projects Experience

Project Type: Title	Funding Agency	Amount (INR)	Period	Role
Sponsored: Sustainable food security through technological interventions for production, processing and logistics	Ministry of Human Resource Development, Government of India	26,00,00,000 (Overall)	02/2014 to 02/2018	Lead role for delivering project modules in the capacity of **Research Assistant** under PI and co-PI
Sponsored: Research & innovation partnership for efficient and sustainable freight transportation	European Union	100000 (To self)	01/2018 to 07/2018	Played lead role in developing sustainable freight transportation models in the capacity of **Technical Expert.**
Sponsored: Feedback mechanisms across the life cycle for customer driven optimisation of innovative product service design	European Union	560000 (To self)	02/2016 to 05/2016	Played lead role in developing efficient algorithms for customer preference driven product attribute ranking in the capacity of **PhD Research Intern**
Sponsored: Towards a robust airport decision support system for intelligent taxiing	European Union	30000000 (Overall)	09/2017 to 10/2020	Contributed to the development of fuel efficient and robust aircraft ground transportation models in the capacity of **Research Associate**

Sponsored: Improving resource efficiency of agribusiness supply chains by minimising waste using big data and internet of things sensors	European Union	419,252,790 (Overall)	01/2019 to 07/2022	Leading a complete work package to deliver IoT and sensor technology solutions to UK based fresh food end-user sector in the capacity of **Research Fellow**
Consultancy: Implementation of Block chain technology to Agri-Food SME	University of Bedfordshire	950000 (Overall)	09/2020 to 10/2020	Leading the research work on block chain technology acceptance analysis for food supply chains in the capacity of **Academic Consultant**

Training/ workshop organised

- Responsible for preparing course content and organizing interactive Lab sessions (using CPLEX) for International Summer Winter Term ISWT course Supply Chain Network – Modeling and Analysis. (2015)

- Organized lab sessions (in SAS) as a part of Short term course "Data Analytics with SAS", organized by Indian Institute of Technology Kharagpur (2015).

- Conducted hands on exercises on select topics of Lean and Six Sigma using Sigma Excel for Industry Practitioners in the event of workshop organized at Bengal Chamber of Commerce (BCCI), on "Operational Excellence through Lean and Six Sigma" (2014).

- Presented invited lecture on "Advanced Optimisation using PSO – Single Objective variants and a multi-objective method" at virtual faculty development workshop organized by Mahatma Gandhi Institute of Technology, JNTU, Hyderabad (2020).

- Presented invited lecture on "Big Data analytics – Cases from REAMIT project" at University of Bedfordshire Business School, 2020

- Presented at Invited Lecture for the webinar series from Operations Research – Bodhanam on "Internet of Things and Big Data Analytics in reducing Food Waste in Europe" organized by Operations Research Society India, IISc Bangalore, 2021.

- Invited to present at Faculty Development Program organized by Indian Institute of Plantation Management, Bangalore and ATAL Academy, AICTE on "Resource Efficiency of Agribusiness supply chains by Minimising waste using Big Data and Internet of Things sensors", 2021

Honours and Awards

- The top 1% of reviewers in each field who performed the most verified pre-publication peer reviews on Publons for Publons Peer Review Awards 2017.
- Outstanding Contribution in Reviewing, **Computers & Industrial Engineering**, Elsevier, September 2017
- **Google Scholar Citation = 297**; h-index = 8.
- Received full funding for visiting to Cranfield University as Research visitor on behalf of University of Sheffield through EPSRC project.
- **Received funding** for carrying out collaborative research work between Indian Institute of Technology Kharagpur and Ecole Polytechnique Federale de Lausanne, Switzerland
- Recipient of **Institute Travel Grant** from **Indian Institute of Technology Kharagpur** for presenting paper in 15th IFAC/IEEE/IFIP/IFORS Symposium on Information Control Problems in Manufacturing, INCOM 2015 (held at Ottawa, Canada during May 10-13, 2015)
- Recipient of **Institute Travel Grant** from **Indian Institute of Technology Kharagpur** for presenting paper in IISE Annual conference and Expo (held at Orlando, USA during May 19-22, 2018)
- Recipient of academic proficiency prize in the first year of M.Tech (Industrial Engineering), 2010-2011.
- **Ph.D. Fellowship,** Ministry of Human Resource Department, Government of India, 2014 – 2018.
- **GATE Scholarship,** Ministry of Human Resource Department, Government of India, 2010 – 2012.

Reviewer Assignments

Serving as a reviewer for the following journals,

- Transactions on Systems, Man, and Cybernetics: Systems (IEEE)
- Information Sciences (Elsevier)
- Engineering Applications of Artificial Intelligence (Elsevier)
- International Journal of Production Research (Taylor & Francis)
- Computers & Industrial Engineering (Elsevier)
- Computers and Operations Research (Elsevier)
- International Journal of Production Economics (Elsevier)
- Journal of Intelligent Manufacturing (Springer)
- Neuro-computing (Elsevier)
- INAE Letters
- Sensors (MDPI)
- Computation (MDPI)
- Engineering Management Review (IEEE)