

Special sessions

Uncertainty quantification and its applications in supply chain or logistics

5th international conference on “Modelling, Computation and Optimization in Information Systems and Management Sciences”

MCO 2025

June 4 - 6, 2025, Metz, France

<https://mco2025.event.univ-lorraine.fr/>

Organizer: Eduardo Souza de Cursi (INSA Rouen, France), Lamia Hammadi (ENSA El Jadida, Université Chouaïb Doukkali, El Jadida, Maroc) et Babacar Mbaye Ndiaye (Université Cheikh Anta Diop, Dakar, Senegal)

Email: eduardo.souza@insa-rouen.fr, hammadi.l@ucd.ac.ma,

babacarm.ndiaye@ucad.edu.sn

General description of the special session:

Uncertainty is a critical challenge that affects decision-making, operational efficiency, and risk management. This session explores the role of Uncertainty Quantification (UQ) in addressing these challenges by providing robust mathematical, statistical, and computational tools to model, analyze, and mitigate uncertainty.

Session topics:

The special session will focus on, but not be limited to, the following topics:

- Mathematical and statistical approaches for UQ:
 - Probabilistic modeling and stochastic processes.
 - Bayesian methods for parameter estimation.
 - Monte Carlo simulations
 - Stochastic differential and difference equations.
 - Random differential and difference equations.
- Computational techniques for UQ in logistics optimization
 - Machine learning and AI-driven predictive modeling.
 - Sensitivity analysis and reliability assessment.
 - Classical and fractional stochastic processes
- Applications in supply chain and logistics
 - Demand forecasting & inventory management: handling demand variability using probabilistic forecasting models.

- Transportation and route optimization: managing delivery delays and dynamic routing under uncertain conditions.
- Risk mitigation in global supply chains: reducing the impact of supply chain disruptions through resilience modeling.
- Cost optimization and resource allocation: leveraging UQ to optimize costs and minimize inefficiencies.
- Case studies and industry applications
 - Real-world examples from retail, manufacturing, and logistics companies.
 - Use cases of digital twins, IoT, and blockchain in uncertainty management.
 - Agent-based probabilistic models.

Submission

Submissions are open at <https://mco2025.event.univ-lorraine.fr/page/submission>

(Select the track “Special Session - Uncertainty quantification and its applications in supply chain or logistics”)

Important dates:

March 09, 2025	Deadline for the submission
March 24, 2025	Notification of acceptance/rejection
April 15, 2025	Abstract submission deadline
April 17, 2025	Abstract acceptance/rejection notification