

Luis E. Herrera-del-Canto, Ph.D.

Professor of Industrial and Systems Engineering

Academic Director – Master of Engineering in Quality Systems and Productivity (MIP)

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Professional Summary

Industrial and Systems Engineering scholar specializing in discrete-event simulation, applied statistics, stochastic optimization, supply chain systems, and simulation-based decision support. Academic leader with over 18 years of experience integrating research, graduate instruction, and industry collaboration. Current research focuses on digital twins, open-source simulation infrastructure (SimPy), and optimization-simulation hybrid methodologies for complex systems.

Current Research Agenda (2026–2028)

- Open-source simulation infrastructure for applied operations research (SimPy-based modeling frameworks).
- Digital twins for logistics, warehousing systems, and last-mile distribution.
- Optimization-simulation hybrid models for resilient supply chains.
- Simulation-based pedagogy and graduate engineering education innovation.
- AI-enabled supply chain redesign and stochastic network modeling.

Academic Leadership

- Academic Director, Master of Engineering in Quality Systems and Productivity (MIP) (2022–Present).
 - Led curriculum modernization integrating Lean Six Sigma, DOE, analytics, and simulation.
 - Advanced international academic alignment initiatives with leading global institutions.
 - Led dual-degree alignment discussions with Arizona State University.
- Institutionalized industry-embedded graduate capstone projects using DMAIC methodology.
- Strengthened measurable Student Learning Outcomes (SLOs).
- Chair, Industrial & Systems Engineering Department (2013–2017).

Academic Appointments

- Associate Professor, Industrial & Systems Engineering, Tecnológico de Monterrey (2017–Present).

- Chair, Department of Industrial and Systems Engineering, Tecnológico de Monterrey (2013–2017).
- Assistant Professor, Industrial & Systems Engineering, Tecnológico de Monterrey (2007–2013).
- Visiting Researcher, Siemens Research Corporate (2006).
- Graduate Fellow and Teaching Assistant, Georgia Institute of Technology (2001–2007).

Education

- Ph.D., Industrial Engineering, Georgia Institute of Technology (2007).
- M.S., Manufacturing and Logistics, Georgia Institute of Technology (2005).
- M.S., Operations Research, Universidad Nacional Autónoma de México (2001).
- B.S., Civil Engineering (Honors), UNAM (1995).

Selected Peer-Reviewed Journal Publications

- Chávez, H., Castillo-Villar, K., Herrera, L., Bustos, A. (2016). Simulation-based multi-objective model for supply chains with disruptions. *Robotics and Computer-Integrated Manufacturing*.
- Bustos, A., Herrera, L., Jimenez, E. (2014). Efficient frontier for multi-objective stochastic transportation networks. *Journal of Applied Research and Technology*.
- Hernandez Gress, E.S., Mora-Vargas, J., Herrera-del-Canto, L.E. (2011). Genetic algorithm for unequal-area block layout design. *International Journal of Production Research*.

Working Papers

- Herrera, L., Goldsman, D. Open-Source Simulation for Applied Operations Research: An Infrastructure Based on SimPy. *Target Journal: Simulation*.

Selected Industry Impact & Funded Projects

- Hubbell™ (2025): AI-enabled supply chain redesign; USD 250K cost reduction.
- E3™ (2019-2020): Analysis and Design of Layout Operations; 200K USD cost reduction.
- Heineken™ (2014–2015): Logistics modeling; 16% reduction in CO2 emissions.
- Grupo Bimbo™, Unilever™, Colgate™, Pepsico™: Distribution network optimization and simulation.
- Gas Natural™: Discrete-event simulation reduced customer waiting times by 24%.

Selected Graduate & Doctoral Teaching

- Advanced Simulation (Ph.D. level).
- Discrete-Event Simulation (Graduate and Undergraduate).
- Supply Chain Design and Logistics Systems.
- Design of Experiments and Statistical Quality Control.
- Simulation, Digitalization, and Operations Analysis.

- Statistics and Foundations of Machine Learning
- Competitiveness and Corporate Sustainability using Business Simulators (in collaboration with InChange™).

Graduate Student Supervision

- Supervised multiple Ph.D. dissertations in stochastic networks, vehicle routing, and supply chain simulation.
- Directed over 20 M.Sc. theses in logistics, optimization, and data analytics.
- Served on numerous Ph.D. and M.Sc. thesis committees.

Professional Service

- Logistics Track Committee Chair, Winter Simulation Conference (2019–2025).
- Member: Institute of Industrial and Systems Engineers (IISE), ASQ, PMI.

Honors and Awards

- Fulbright Graduate Scholarship (2001–2005).
- Reimagine Education Conference – 1st Place Award (2017).