Héctor J. Carlo, Ph.D.

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***OBJECTIVE*:**
To provide advanced practical data-driven solutions to challenging problems involving the design or optimization of warehousing, distribution, and logistics systems.

***KEY EXPERTISE*:**
Design and optimization of supply chain distribution & logistics systems; intralogistics of distribution centers, warehouses, cross-docks, and container terminals; advanced optimization methods; non-traditional designs and models to challenge operational paradigms; scheduling, and reconfigurable manufacturing.

EDUCATION:

Ph.D. in Industrial and Operations Engineering, University of Michigan, Ann Arbor, MI, 2007

M.S.E., Industrial and Operations Engineering, University of Michigan, Ann Arbor, MI, 2003

B.S. Industrial Engineering, University of Puerto Rico – Mayagüez, Mayagüez, PR, 2001

APPOINTMENTS:

Professor, Industrial Engineering Department, University of Puerto Rico - Mayagüez. (July 2016 – present)
Early promotion for exceptional merit. On leave of absence

Director, Research & Development, Fortna, Inc. (July 2018 – 2020).

- Led the company's R&D department, including four direct reports. My main responsibilities included: *i)* developing science-based algorithms for FortnaWES™ warehouse execution software, *ii)* developing optimization models to improve the designs of fulfillment centers, *iii)* leading data science efforts within the Company, including all order profiling and media runs performed by the Analysis Center of Excellence, and *iv)* leading the development and execution of discrete event simulations within the Company. Some of the algorithms developed include Travel Optimization, Smart Order Grouping, Pick-to-Belt algorithm, Pull-based Picking, and Workflow Management.

Associate Professor, Industrial Engineering Department, University of Puerto Rico – Mayagüez (July 2010 – June 2016; **tenured** July 1, 2011)

Visiting Professor, Faculty of Economics and Business, University of Groningen, The Netherlands (January 2012 – July 2012)

Assistant Professor, Industrial Engineering Department, University of Puerto Rico – Mayagüez (January 2007 – June 2010)

***PUBLICATIONS (10-SELECTED)* – A FULL LIST OF PUBLICATIONS IS AVAILABLE AT HTTPS://WORDPRESS.COM/PAGE/HJCARLO.WORDPRESS.COM/310:**

- Baardman, L., Roodbergen, K.J., Carlo, H.J., Schrotenboer, A. (2021) A Special Case of the Multiple Traveling Salesmen Problem in end-of-asile picking systems. Transportation Science, Accepted for Publication.
- Santiváñez, J.A., Carlo, H.J. (2018) Reliable Capacitated Facility Location Problem with Service Levels. EURO Journal on Transportation and Logistics, 7(4), 315-341. DOI: 10.1007/s13676-018-0125-z.
- Pazour, J. and Carlo, H.J. (2015) Warehouse Reshuffling: Insights and Optimization, Transportation Research Part E: Logistics and Transportation Review, 73(1): 207-226. doi: 10.1016/j.tre.2014.11.002
- Buijs, P., Vis, I.F.A., Carlo, H.J., (2014), Synchronization in cross-docking networks: A research classification and framework. *European Journal of Operational Research*, 239(3): 593–608.

- Carlo, H.J., Vis, I.F.A., Roodbergen, K.J. (2014) Transport Operations in Container Terminals: Literature Overview, Trends, Research Directions and Classification Scheme. *European Journal of Operational Research*, 236(1): 1-13.
- Carlo, H.J., Vis, I.F.A., Roodbergen, K.J. (2014) Storage Yard Operations in Container Terminals: Literature Overview, Trends, and Research Directions. *European Journal of Operational Research*, 235(2): 412-430.
- Carlo, H.J. and Giraldo, G.E. (2012) Toward Perpetually Organized Unit-Load Warehouses, Computers & Industrial Engineering, 64(4):1003-1012. doi: 10.1016/j.cie.2012.06.012.
- Carlo, H.J. and Vis, I.F.A. (2012) Sequencing Dynamic Storage Systems with Multiple Lifts and Shuttles, International Journal of Production Economics, 140: 844-853. doi: 10.1016/j.ijpe.2012.06.035.
- Vis, I.F.A. and Carlo, H.J. (2010) Sequencing Two Cooperating Automated Stacking Cranes in a Container Terminal. *Transportation Science*, 44(2): 169-182.
- Bozer, Y.A. and Carlo, H.J. (2008) Optimizing Inbound and Outbound Door Assignments in Less-than-Truckload Crossdocks. *IIE Transactions*, 40(11): 1007-1018.

SYNERGISTIC ACTIVITIES:

- SBM Innovations, LLC **Co-founder** – a software and innovation company; developers of Scholar-Link and Fleet-Link (August 2012 – present)
- **Logistics Advisor** to UPRM chancellor immediately after Hurricane María
- Director of **Lean Logistics Lab** at UPRM – student centered research and innovation lab that has hosted over 60 **undergraduate and graduate** students.
- Maintains an active **blog dedicated to Industrial Engineering** – 135,000 + visits. https://hjcarlo.wordpress.com
- **Transportation Director for XXI Centeramerican and Caribbean Games – Mayagüez 2010** (May - August 2010) – Responsible for over 330 official vehicles for VIPs and managed 400 volunteer drivers for this sporting event with over 3,000 athletes.
- **Transportation Director XXX Ibero-American Mathematics Olympics at UPRM** (November 2015) – Responsible for transporting ~215 people for nine days.
- **Engineering Mentoring Coordinator for PR-LSAMP / UPR-Mayagüez** (January 2008-July 2010) – Responsible for coordinating 4 seminars per semester to help prepare underrepresented minority students performing undergraduate research for graduate school.
- **Co-coordinator of Educational Component for Center for Island, Maritime and Extreme Environment Security (CIMES)** (August 2009-present) – Responsible for developing and coordinating the educational component of a DHS Center of Excellence at UPRM.

SKILLS:

- Strong written and verbal skills in English and Spanish
- Capacity to define and solve complex applied problems
- Proven leadership with experience selecting, organizing, managing, and delivering as a team
- Creative (non-linear) thinker that identifies and challenges paradigms

REFERENCES:

Available upon request