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Employment History

- 2021 – • **Director of PhD and MSc Program in Computer Science.** Tecnologico de Monterrey, Mexico.
- **Coordinator of the High-Specialty Certificate in Data Science.** Tecnologico de Monterrey, Mexico.
- 2016 – • **Research Professor.** Tecnologico de Monterrey, Mexico.
- 2014 – 2016 • **Postdoctoral Researcher.** Tecnologico de Monterrey, Mexico.
- 2013 – 2014 • **Research fellow.** University of Nottingham, United Kingdom.

Education

- 2020 – 2021 • **Master in Education with major in Tutoring.** Universidad del Valle de Mexico, Mexico.
- **Master in Special Education.** Universidad IEU, Mexico.
- 2019 – 2021 • **Master in Administration of Information Technology.** Universidad Tecmilenio, Mexico.
- 2018 – 2019 • **Master in Administration of Educational Institutions.** Universidad IEU, Mexico.
- **Master in Education with major in Innovation and Educative Technology.** Universidad del Valle de Mexico, Mexico.
- 2015 – 2019 • **Bachelor of Engineering in Project Management.** Universidad Virtual del Estado de Guanajuato, Mexico.
- 2016 – 2018 • **Master in Education with major in competency-based education.** Universidad del Valle de Mexico, Mexico.
- 2008 – 2011 • **Doctor of Philosophy in Information Technologies and Communications with major in Intelligent Systems.** Tecnologico de Monterrey, Mexico.
- 2006 – 2008 • **Master of Science with major in Intelligent Systems.** Tecnologico de Monterrey, Mexico.
- 2000 – 2006 • **Bachelor of Engineering in Computing.** Universidad Tecnologica de la Mixteca, Mexico.

Recent publications

Journal Articles

- Benavides-Robles, M. T., Cruz-Duarte, J. M., Amaya, I., & **Ortiz-Bayliss, J. C.** (2026). Heuristic selection through neural networks: an extended analysis on the pod allocation problem within robotic mobile fulfillment systems. *Neural Computing and Applications*, 38(42). [🔗 https://doi.org/10.1007/s00521-025-11801-6](https://doi.org/10.1007/s00521-025-11801-6)
- Acosta Murillo, R., Zapata-Morin, P. A., & **Ortiz-Bayliss, J. C.** (2025). Benchmarking Molecular Mutation Operators for Evolutionary Drug Design. *International Journal of Molecular Sciences*, 26(23). [🔗 https://doi.org/10.3390/ijms262311685](https://doi.org/10.3390/ijms262311685)
- Ahmed, M., Hussain, S., Ali, F., Gárate-Escamilla, A. K., Amaya, I., Ochoa-Ruiz, G., & **Ortiz-Bayliss, J. C.** (2025). Summarizing Recent Developments on Autism Spectrum Disorder Detection and Classification Through Machine Learning and Deep Learning Techniques. *Applied Sciences*, 15(14). [🔗 https://doi.org/10.3390/app15148056](https://doi.org/10.3390/app15148056)
- Benavides-Robles, M. T., Cruz-Duarte, J. M., **Ortiz-Bayliss, J. C.**, & Amaya, I. (2025). Algorithm Selection for Allocating Pods Within Robotic Mobile Fulfillment Systems: A Hyper-Heuristic Approach. *IEEE Access*, 13, 14010–14028. [🔗 https://doi.org/10.1109/ACCESS.2025.3530842](https://doi.org/10.1109/ACCESS.2025.3530842)
- Duque-Gimenez, G. C., Zambrano-Gutierrez, D. F., Rodriguez-Nieto, M., Menchaca, J. L., Cruz-Duarte, J. M., Zárate-Triviño, D. G., Avina-Cervantes, J. G., & **Ortiz-Bayliss, J. C.** (2025). Viscoelastic characterization of the human osteosarcoma cancer cell line MG-63 using a fractional-order zener model through automated algorithm design and configuration. *Scientific Reports*, 15(31436). [🔗 https://doi.org/10.1038/s41598-025-16174-3](https://doi.org/10.1038/s41598-025-16174-3)

- Juárez, J., Falcón-Cardona, J.-G., & **Ortiz-Bayliss, J. C.** (2025). A steady state micro genetic algorithm for hyper-heuristic generation in one-dimensional bin packing. *Scientific Reports*, 15(27220).
<https://doi.org/10.1038/s41598-025-10790-9>
- Ortiz-Bayliss, J. C.**, Vela Morales, A., & Amaya, I. (2025). How Much Is Too Much? Facing Practical Limitations in Hyper-Heuristic Design for Packing Problems. *Algorithms*, 18(8). <https://doi.org/10.3390/a18080502>
- Vela, A., Valencia-Rivera, G. H., Cruz-Duarte, J. M., **Ortiz-Bayliss, J. C.**, & Amaya, I. (2025). Hyper-Heuristics and Scheduling Problems: Strategies, Application Areas, and Performance Metrics. *IEEE Access*, 13, 14983–14997.
<https://doi.org/10.1109/ACCESS.2025.3532201>
- Yung, T., Benavides-Robles, M. T., **Ortiz-Bayliss, J. C.**, & Amaya, I. (2025). Robotic Mobile Fulfillment Systems: Are Hyper-Heuristics a Feasible Approach When Dealing With the Pod Allocation and Item Storage Problems? *IEEE Access*, 13, 101385–101404. <https://doi.org/10.1109/ACCESS.2025.3578401>
- Zárate-Aranda, J. E., & **Ortiz-Bayliss, J. C.** (2025). Machine-learning-based hyper-heuristics for solving the Knapsack Problem. *Pattern Recognition Letters*, 196, 338–343.
<https://doi.org/https://doi.org/10.1016/j.patrec.2025.03.011>

Recent Training

- 2026
- **Learning path – Human skills in the age of AI.** LinkedIn Learning in collaboration with Microsoft.
 - **Learning path – Microsoft Copilot for Productivity.** LinkedIn Learning in collaboration with Microsoft.
 - **Learning path – Artificial Intelligence for Business Leaders.** LinkedIn Learning in collaboration with Microsoft.
 - **Learning path – Security Fundamentals.** LinkedIn Learning in collaboration with Microsoft.
 - **Learning path – Professional Foundations of Generative AI.** LinkedIn Learning in collaboration with Microsoft.
 - **Learning path – Artificial Intelligence for Managers.** LinkedIn Learning in collaboration with Microsoft.
 - **Specialization – R programming for Data Science.** Logical Operations (through Coursera.org).
 - **Specialization – IBM AI Foundations for Business.** IBM (through Coursera.org).
 - **Specialization – Google People Management Essentials.** Google (through Coursera.org).
 - **Specialization – Google Prompting.** Google (through Coursera.org).
 - **Specialization – Google AI Essentials.** Google (through Coursera.org).
 - **Learning path – Professional Foundations of Data Analysis.** LinkedIn Learning in collaboration with Microsoft.
 - **Professional Certificate – Generative AI Leader.** Google (through Coursera.org).
 - **Specialization – Virtual teacher.** University of California, Irvine (through Coursera.org).
 - **Learning path – Professional fundamentals of project management.** LinkedIn Learning in collaboration with Microsoft.

Awards

- 2020 – 2025 • **Circle of Outstanding Teachers.** Tecnológico de Monterrey, Mexico.
- 2025 – • **Associate Professor / Research Professor.** Tecnológico de Monterrey, México.
- 2020 – 2025 • **Assistant Professor / Research Professor.** Tecnológico de Monterrey, México.
- 2020 – 2029 • **National Researcher (SNII) - Level I.** SECIHTI, Mexico.
- 2017 – 2019 • **National Researcher (SNII) - Candidate.** SECIHTI, México.

Associations

- 2020 – 2026 • **Adherent member.** Academia Mexicana de Computacion (AMEXCOMP).

Associations (continued)

- 2016 – 2027
- **Regular member.** Association for the Advancement of Artificial Intelligence (AAAI).
- 2017 – 2027
- **Member.** Institute of Electrical and Electronics Engineers (IEEE).
 - **Member.** Association for Computing Machinery (ACM).

Languages

- Spanish
- **Native language.**
- English
- **Professional proficiency.** TOEFL ITP: 620 (2019).