

# Mario Hevia Fajardo

Birmingham  
United Kingdom  
☎ +44 7404253132  
✉ [mario\\_hevia@hotmail.com](mailto:mario_hevia@hotmail.com)  
🏠 [mhevia.com](http://mhevia.com)  
🌐 [mario-hevia](https://www.linkedin.com/in/mario-hevia)  
🔄 [mariohevia](https://github.com/mariohevia)

*Right to work in the UK and EU.*

## Work Experience

- 2022–Present **Research Fellow**, *University of Birmingham*, UK.  
Member of Turing AI Acceleration fellowship project on “Rigorous Time-Complexity Analysis of co-Evolutionary Algorithms” under the leadership of Prof. Per Kristian Lehre.
- Program Committee Member for the first UK AI Conference 2023, organised by the Alan Turing Institute, and the Genetic and Evolutionary Computation Conference (GECCO 2023–2025), the ACM flagship conference on evolutionary computation.
  - Authored seven publications in high-impact, peer-reviewed journals and top-rated conferences, including three collaborations with researchers from the Massachusetts Institute of Technology (MIT).
  - Presented my work at top-rated conferences and research seminars, and presented a tutorial on competitive coevolutionary algorithms on the IEEE World Congress on Computational Intelligence (WCCI 2024) and the 18th International Conference on Parallel Problem Solving From Nature (PPSN 2024).
- 2019–2021 **Graduate Teaching Assistant**, *University of Sheffield*, UK.  
Assisted with teaching responsibilities, including lecturing, grading, and tutoring, for the following courses:
- Advanced Algorithms (Autumn 20/21)
  - Scalable Machine Learning (Spring 19/20, 20/21)
  - Introduction to Algorithms and Data Structures (Spring 18/19, 19/20)
- 2016–2017 **Field Service Engineer**, *Festo Pneumatic*, Mexico.  
Accountable for the commissioning of high-complexity projects nationwide for key clients such as Bimbo, Jumex, and Femsas. Additionally, coordinated the commissioning of low and medium-complexity projects across central and southern Mexico.
- Create a standard for programming of Festo PLC and HMI nationwide in accordance with IEC 61131-3.
  - Key participation in the creation of procedures for the commissioning of projects that include programming nationwide.
  - Implementation of several automatic quality control projects using computer vision.
- 2015–2016 **Project Engineer**, *Festo Pneumatic*, Mexico.  
Accountable for the commissioning of low and medium-complexity projects in Mexico City, Cuernavaca and Queretaro.
- 2013–2014 **Initiative Operation Leader**, *Procter & Gamble*, Mexico.  
Coordinate local project delivery functions and the needed supply chain items to ensure that product changes from HDL (Heavy Duty Liquids) and HDW (Hand Dish Washers) categories produced in Vallejo Plant and Aerobal were delivered to the market as planned.

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## Key Skills

### Languages

Spanish Native English Fluent

### Programming Skills

Languages Python, Ocaml, C++, Spark(Scala), L<sup>A</sup>T<sub>E</sub>X, R  
Frameworks PyTorch, Jax, Scikit-learn, Pandas, Numpy  
DevOps Docker, Singularity, Git, HPC deployment (SLURM)

### Courses and Training

Mgmt.	“Fit for Leading Leaders”	July 2017 at Festo Pneumatic
Sales	“Fit for Change - Module II”	October 2016 at Festo Pneumatic
Sales	“Fit for Change - Module I”	April 2016 at Festo Pneumatic
Mgmt.	“Managing Talent”	November 2015 at University of Michigan
Mgmt.	“Inspiring and Motivating Individuals”	October 2015 at University of Michigan
Teach	“Training the trainers”	March 2015 at Festo Didactic

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## Education

2019–2022 **PhD Computer Science**, *University of Sheffield, UK.*  
Title: *Runtime Analysis of Success-Based Parameter Control Mechanisms for Evolutionary Algorithms on Multimodal Problems*

2017–2018 **MSc Data Analytics**, *University of Sheffield, UK, 1st – Distinction.*  
Dissertation: *Comparison and modification of self-adjusting evolutionary algorithms*

2010–2014 **BSc Mechatronics Engineering**, *Tecnológico de Monterrey, Mexico, Distinction.*  
CENEVAL award for the “EGEL–Excellence Performance”  
Outstanding participation in the high performance academic group, Principia 2010–2012

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## Awards and Achievements

2021 **Best paper award**, *ACM Genetic and Evolutionary Computation Conference (GECCO).*  
Award in the prestigious “Theory” track.

07-12/2014 **CENEVAL award for “EGEL–Excellence Performance”.**  
Awarded by the National Evaluation Center for Higher Education (CENEVAL) to the graduates who reached the level of excellence (~1% of graduates at national level) in their General Exam for the Graduate Degree (EGEL).

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## Grants

2019–2022 **Doctoral Scholarship from the Department of Computer Science**, *University of Sheffield, UK.*  
Full UK/EU tuition fee and maintenance stipend for three years (approximately £60k).

2020–2023 **CONACYT Scholarship for Doctorate Studies Abroad 2020**, *CONACYT, Mexico.*  
Largest doctorate scholarship offered by CONACYT at the time (approximately £47k).

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## Selected Publications

- [1] Mario Alejandro Hevia Fajardo and Dirk Sudholt. Self-adjusting Offspring population sizes outperform fixed parameters on the cliff function. *Artificial Intelligence*, 328: 104061, 2024b. doi: 10.1016/j.artint.2023.104061. URL <https://doi.org/10.1016/j.artint.2023.104061>.
- [2] Mario Alejandro Hevia Fajardo and Dirk Sudholt. Self-adjusting Population Sizes for Non-elitist Evolutionary Algorithms: Why Success Rates Matter. *Algorithmica*, 86 (2):526–565, 2024a. doi: 10.1007/s00453-023-01153-9. URL <https://doi.org/10.1007/s00453-023-01153-9>.
- [3] Mario Alejandro Hevia Fajardo and Dirk Sudholt. Theoretical and empirical analysis of parameter control mechanisms in the  $(1 + (\lambda, \lambda))$  genetic algorithm. *ACM Trans. Evol. Learn. Optim.*, 2(4), January 2023. ISSN 2688-299X. doi: 10.1145/3564755. URL <https://doi.org/10.1145/3564755>.