

# M.Sc Cosijopii García García.

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🌐 IEEE Member Student, IEEE CIS Member, ACM Sigevo Member

Cosijopii Garcia Garcia is a researcher in the field of Evolutionary Neural Architecture Search. He is currently pursuing a PhD at INAOE (Instituto Nacional de Astrofísica, Óptica y Electrónica), with an expected graduation between December 2024 and January 2025. His research focuses on Multi-Objective Optimization Problems (MOPs) and Multi-Objective Neural Architecture Search (NAS). He also possesses a strong background in Machine Learning (ML) and Deep Learning, particularly in Convolutional Neural Networks, which enables him to apply these techniques to solve real-world problems in a variety of domains.

## Education

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| Jan 2021 – Jan 2025 | ■ <b>Instituto Nacional de Astrofísica, Óptica y Electrónica ,<br/>San Andres Cholula , Puebla, México</b><br><i>Doctor of Science in Computer Science.</i><br>Thesis title: <b>Automatic design of convolutional neural network architectures using Multiobjective Evolutionary Algorithms.</b> |
| Aug 2018 – Oct 2020 | ■ <b>Instituto Nacional de Astrofísica, Óptica y Electrónica ,<br/>San Andres Cholula , Puebla, Mexico</b><br><i>Master of Science in Computer Science.</i><br>Thesis title: <b>A Cellular Evolutionary Algorithm To Tackle Constrained Multiobjective Optimization Problems.</b>                |
| Oct 2012 – May 2018 | ■ <b>Universidad del Istmo Campus Ixtepec, Ciudad Ixtepec, Oaxaca, Mexico.</b><br><i>Bachelor's Degree in Informatics.</i><br>Thesis title: <b>Gender classification using anthropometric measurements, texture analysis and ANFIS architecture.</b>   |


## Publications

- 1 **Garcia-Garcia, C.,** Derbel, B., Morales-Reyes, A., & Escalante, H. J. (2024). Speeding up the Multi-Objective NAS Through Incremental Learning [Will be presented in october 2024]. *23rd Mexican International Conference on Artificial Intelligence.*
- 2 **Garcia-Garcia, C.,** Morales-Reyes, A., & Escalante, H. J. (2024). Progressive self-supervised multi-objective nas for image classification. *International Conference on the Applications of Evolutionary Computation (Part of EvoStar), Aberystwyth, Wales, United Kingdom 3-5 April*, 180–195.  
[https://doi.org/10.1007/978-3-031-56855-8\\_11](https://doi.org/10.1007/978-3-031-56855-8_11)
- 3 **Garcia-Garcia, C.,** Morales-Reyes, A., & Escalante, H. J. (2023a). Continuous cartesian genetic programming based representation for multi-objective neural architecture search. *Applied Soft Computing*, 147, 110788. <https://doi.org/https://doi.org/10.1016/j.asoc.2023.110788>
- 4 **Garcia-Garcia, C.,** Morales-Reyes, A., & Escalante, H. J. (2023b). Continuous Cartesian Genetic Programming based representation for Multi-Objective Neural Architecture Search for Image Classification [Poster Presentation]. *Computer Vision and Pattern Recognition Conference: LatinX in AI (LXAI) Research Workshop 2023, Vancouver, Canada.*  
[https://research.latinxinai.org/papers/cvpr/2023/pdf/Cosijopii\\_Garcia.pdf](https://research.latinxinai.org/papers/cvpr/2023/pdf/Cosijopii_Garcia.pdf)
- 5 **Garcia-Garcia, C.,** Escalante, H. J., & Morales-Reyes, A. (2022). CGP-NAS: Real-based solutions encoding for multi-objective evolutionary neural architecture search. *Genetic and Evolutionary Computation Conference Companion (GECCO '22 Companion), July 9–13, 2022, Boston, MA, USA*, 1.  
<https://doi.org/10.1145/3520304>

- 6 **Garcia-Garcia, C.** (2022). *Automatic design of convolutional neural network architectures using multiobjective evolutionary algorithms* (tech. rep.). INAOE.  
<https://ccc.inaoep.mx/archivos/2021/CCC-22-006.pdf>
- 7 **Garcia-Garcia, C.,** Martínez-Peñaloza, M.-G., & Morales-Reyes, A. (2020). cMOGA/D: a novel cellular GA based on decomposition to tackle constrained multiobjective problems. *In Genetic and Evolutionary Computation Conference Companion (GECCO '20 Companion)*, 9.  
<https://doi.org/10.1145/3377929.3398137>
- 8 Meléndez Acosta, N. J., Solano Monje, R., **Garcia-Garcia, C.,** & Riós Figueroa, H. V. (2019). Ca-PSO: Coulomb attracting Particle Swarms. *Programación Matemática y Software, ISSN :2007-3283*, 3, 11.  
<https://doi.org/doi.org/10.30973/progmat/2019.11.3/1>
- 9 Solano Monje, R., Meléndez Acosta, N. J., **Garcia-Garcia, C.,** & Riós Figueroa, H. V. (2018). C-PSO: Particle Swarm Optimization by Embedding Coulomb's Law. *COMIA*, 12.  
<https://doi.org/10.13053/racs-147-8-24>
- 10 **Garcia-Garcia, C.,** & Meléndez Acosta, N. J. (2017). Clasificación de género utilizando medidas antropométricas, análisis de texturas y la arquitectura ANFIS. *Advances in Social Informatics and its Applications*, 136, 33–46. <https://doi.org/10.13053/racs-136-1-3>



## Experience

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- Nov 2023 – Apr 2024  **Research Fellowship - Internship.** The French national research institute for digital science and technology (INRIA), Lille, hauts-de-france, France.
- Jan 2023 – May 2023  **Computational intelligence course assistant.** Instituto Nacional de Astrofísica, Óptica y Electrónica, San Andres Cholula, Puebla, México.
- Jul 2016 – Dec 2016  **Software development intern.** EFACEC sistemas de España, S.L. Juchitán de Zaragoza, Oaxaca, México.


## Tutorial Instructor

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- 26 Sep 2022  **X Seminario y Escuela Nacional de Aprendizaje e Inteligencia Computacional.**  
**Tutorial:** Evolutionary Computation in Python: Open Source Frameworks.  
Puebla, Mexico.
- 24 Aug 2022  **IEEE Mexican international conference in computer science 2022.**  
**Tutorial:** An introduction to genetic algorithms and their implementation with open source frameworks.  
Xalapa, Mexico.

## Volunteer

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- Jan 2021 – Jan 2022  **Organizing Committee Member.** Meeting On Artificial Intelligence And Its Applications (RIIAA in spanish), Mexico City, Mexico City.

## Honors and Scholarships

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- Nov 2023 – April 2024     **MOBLILEX scholarship**  
*Research intership* Centre Inria de l'Université de Lille, Lille, hauts-de-france, France.
- May 2022 – Present     **Invited reviewer**  
*Swarm and Evolutionary Computation Journal*
- Dec 2021 – Jan 2024     **Student Council Representative**  
*Computer Science Departament: Scientific diffusion events, induction of new students and meeting events.* Instituto Nacional de Astrofísica, Óptica y Electrónica, Noviembre, San Andres Cholula, Puebla, México.
- May 2021 – Dec 2024     **CONACYT scholarship**  
*Doctor in science degree.* Instituto Nacional de Astrofísica, Óptica y Electrónica, Noviembre, San Andres Cholula, Puebla, México.
- Aug 2018 – Aug 2020     **CONACYT scholarship**  
*Master in science Degree.* Instituto Nacional de Astrofísica, Óptica y Electrónica, Noviembre, San Andres Cholula, Puebla, México.

## Seminars and congresses

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- 2024     **27th International Conference on the Applications of Evolutionary Computation Part of Evostar Conference**, Aberystwyth University, Aberystwyth, Wales, United Kingdom. April. (Full Paper presenter).
- 2023     **LatinX in AI (LXAI) Research Workshop 2023 / The IEEE/CVF Conference on Computer Vision and Pattern Recognition 2023**, Vancouver Convention Center, Vancouver, Canada. June. (Extend abstract presenter).
- 2022     **MUFRAMEX 2nd Thematic School on Deep Generative Models**, Centro de Investigación en Matemáticas (CIMAT), Guanajuato, Mexico. November.
- 2022     **GECCO 2022: Genetic and Evolutionary Computation Conference**, Hybrid event, Boston Massachusetts, USA. July (Poster presenter).
- 2021     **GECCO 2021: Genetic and Evolutionary Computation Conference**, Electronic event July
- 2020     **Thirty-fourth Conference on Neural Information Processing Systems (NeurIPS)**, Electronic event. December
- 2020     **1er. Congreso Internacional en Informática y Ciencias de la Computación**, Electronic event. December
- 2020     **8° Seminario nacional de aprendizaje e inteligencia computacional (SNAIC)**, Electronic event. October
- 2020     **3rd Edition of the International Meeting on Artificial Intelligence and its Applications (RIIAA)**, Electronic event. August
- 2020     **GECCO 2020: Genetic and Evolutionary Computation Conference**, July, Cancún, Quintana Roo, (Full Paper workshop presenter).

## Seminars and congresses (continued)

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- 2019        **2a Reunión de Ciberseguridad para la industria 4.0**, Instituto Nacional de Astrofísica, Óptica y Electrónica, October, Tonantzintla, Puebla.
-     **2nd Edition of the International Meeting on Artificial Intelligence and its Applications (RIIAA)**, Universidad Nacional Autónoma de México, August, Ciudad de México, CDMX.
- 2018        **1ra Reunión de Ciberseguridad para la industria 4.0**, Instituto Nacional de Astrofísica, Óptica y Electrónica, October, Tonantzintla, Puebla.
-     **Septimo Seminario *Entre Pares***, Benemérita Universidad Autónoma de Puebla, September, Puebla, Puebla.
-     **10º Congreso Mexicano de Inteligencia artificial COMIA**, Universidad Politécnica de Yucatán, June, Merida, Yucatán. (**Full Paper presenter**).
- 2017        **2º Congreso de Informática e Innovación Tecnológica (CIIT)**, Universidad del Istmo Campus Tehuantepec, October, Santo Domingo Tehuantepec, Oaxaca, (**Full Paper presenter**).
- 2014        **Congreso de Informática e Innovación Tecnológica (CIIT)**, Universidad del Istmo Campus Ixtepec, October, Ciudad Ixtepec Oaxaca.