

# Daniel Héctor Stolfi Rosso






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## Employment History




- 2019 – ...     **Research Associate.** SnT – Interdisciplinary Centre for Security, Reliability and Trust. University of Luxembourg. Parallel Computing & Optimisation Group (PCOG).
- 2014 – 2018     **PhD Candidate.** University of Málaga. Networking and Emerging Optimization Group (NEO). Thesis title: Bio-inspired Computing and Smart Mobility.
- 2013 – 2014     **Project Researcher.** University of Málaga. Networking and Emerging Optimization Group (NEO). Project: RoadMe: Fundamentals for Real World Applications of Metaheuristics: The Vehicular Network Case (TIN2011-28194).
- 2010 – 2013     **Project Researcher.** University of Málaga. Research and Applications of Artificial Intelligence Group (IAIA). Projects: SCALe@RN: Person Centred Adaptive and Scalable Learning Contents (TSI-020311-2009-6); PATIO: Techniques for collaborative learning and user modelling applied to multicultural integration (TIC-4273).
- 2005 – 2009     **Project Manager, Consultant and Analyst Programmer.** ctDli: Consultoría Tecnológica de la Información, S.L.
- 1999 – 2000     **Telecommunication Technician.** Aucore, S.L.
- 1993 – 2000     **Vocational Education Teacher.** EET.8235 “Ing. Enrique B. Gomara”.

## Education

- 2018     **PhD in Computer Science**, University of Málaga, Spain.  
PhD thesis title: *Bio-inspired Computing and Smart Mobility*. With Cum Laude honors
- 2012     **Master’s degree in Software Engineering and Artificial Intelligence**, University of Málaga, Spain. Thesis title: *Optimization of Road Traffic in Smart Cities*.
- 2010     **M.Sc. Computer Science**, University of Málaga, Spain.  
Dissertation title: *CoMVeT – Mentally controlled unmanned vehicles*. With honors.
- 2004     **B.Sc. Computing & Information Systems**, University of Málaga, Spain.  
Dissertation title: *The school of computer science modelled in virtual reality – The VRML language*. With honors.
- 1992     **Communication Electronic Technician**, EET.8235 “Ing. Enrique B. Gomara”.

## Research Publications

### Journal Articles

-  Brust, M. R., Danoy, G., **Stolfi, D. H.** & Bouvry, P. (2021). Swarm-based counter UAV defense system. *Discover Internet of Things*, 1(1). doi:10.1007/s43926-021-00002-x
-  **Stolfi, D. H.** & Alba, E. (2021). Yellow swarm: Led panels to advise optimal alternative tours to drivers in the city of malaga. *Applied Soft Computing*, 109, 107566.  
doi:<https://doi.org/10.1016/j.asoc.2021.107566>
-  **Stolfi, D. H.**, Brust, M. R., Danoy, G. & Bouvry, P. (2021a). A competitive predator–prey approach to enhance surveillance by uav swarms. *Applied Soft Computing*, 111, 107701.  
doi:<https://doi.org/10.1016/j.asoc.2021.107701>

- 4 **Stolfi, D. H.**, Brust, M. R., Danoy, G. & Bouvry, P. (2021b). CONSOLE: Intruder detection using a UAV swarm and security rings. *Swarm Intelligence*. doi:10.1007/s11721-021-00193-7
- 5 **Stolfi, D. H.**, Brust, M. R., Danoy, G. & Bouvry, P. (2021d). UAV-UGV-UMV Multi-Swarms for Cooperative Surveillance. *Frontiers in Robotics and AI*, 8. doi:10.3389/frobt.2021.616950
- 6 **Stolfi, D. H.**, Alba, E. & Yao, X. (2020). Can i park in the city center? predicting car park occupancy rates in smart cities. *Journal of Urban Technology*, 27(4), 27–41. doi:10.1080/10630732.2019.1586223
- 7 **Stolfi, D. H.**, Brust, M. R., Danoy, G. & Bouvry, P. (2020c). Emerging inter-swarm collaboration for surveillance using pheromones and evolutionary techniques. *Sensors*, 20(9). doi:10.3390/s20092566
- 8 **Stolfi, D. H.** & Alba, E. (2018a). Epigenetic algorithms: A New way of building GAs based on epigenetics. *Information Sciences*, 424(Supplement C), 250–272. doi:10.1016/j.ins.2017.10.005
- 9 **Stolfi, D. H.** & Alba, E. (2018b). Generating realistic urban traffic flows with evolutionary techniques. *Engineering Applications of Artificial Intelligence*, 75, 36–47. doi:10.1016/j.engappai.2018.07.009
- 10 **Stolfi, D. H.** & Alba, E. (2018c). Green swarm: Greener routes with bio-inspired techniques. *Applied Soft Computing*, 71, 952–963. doi:10.1016/j.asoc.2018.07.032
- 11 **Stolfi, D. H.** & Alba, E. (2014b). Red swarm: Reducing travel times in smart cities by using bio-inspired algorithms. *Applied Soft Computing*, 24, 181–195. doi:10.1016/j.asoc.2014.07.014

## Conference Proceedings

- 1 **Stolfi, D. H.**, Brust, M. R., Danoy, G. & Bouvry, P. (2021c). Optimising pheromone communication in a uav swarm. In *Proceedings of the genetic and evolutionary computation conference companion* (pp. 323–324). GECCO '21. Lille, France: Association for Computing Machinery. doi:10.1145/3449726.3459526
- 2 **Stolfi, D. H.**, Brust, M. R., Danoy, G. & Bouvry, P. (2020a). A cooperative coevolutionary approach to maximise surveillance coverage of uav swarms. In *2020 IEEE 17th Annual Consumer Communications Networking Conference (CCNC)* (pp. 1–6). doi:10.1109/CCNC46108.2020.9045643
- 3 **Stolfi, D. H.**, Brust, M. R., Danoy, G. & Bouvry, P. (2020b). Competitive evolution of a uav swarm for improving intruder detection rates. In *2020 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW)* (pp. 528–535). doi:10.1109/IPDPSW50202.2020.00094
- 4 **Stolfi, D. H.**, Brust, M. R., Danoy, G. & Bouvry, P. (2020d). Optimizing the performance of an unpredictable uav swarm for intruder detection. In B. Dorransoro, P. Ruiz, J. C. de la Torre, D. Urda & E.-G. Talbi (Eds.), *Optimization and learning* (pp. 37–48). Cham: Springer International Publishing. doi:10.1007/978-3-030-41913-4\_4
- 5 Camero, A., Toutouh, J., **Stolfi, D. H.** & Alba, E. (2019). Evolutionary deep learning for car park occupancy prediction in smart cities. In R. Battiti, M. Brunato, I. Kotsireas & P. M. Pardalos (Eds.), *Learning and intelligent optimization* (pp. 386–401). Cham: Springer International Publishing. doi:10.1007/978-3-030-05348-2\_32
- 6 Alcaraz, C., Abdo-Sánchez, E., Toutouh, J., Halir, R., Ruiz, M. & **Stolfi, D. H.** (2018). Some ingredients to improve gamification in engineering. In *Edulearn18 proceedings* (pp. 7040–7044). 10th International Conference on Education and New Learning Technologies. Palma, Spain: IATED. doi:10.21125/edulearn.2018.1662
- 7 **Stolfi, D. H.**, Cintrano, C., Chicano, F. & Alba, E. (2018a). An intelligent advisor for city traffic policies. In *Advances in artificial intelligence* (pp. 383–393). Cham: Springer International Publishing. doi:10.1007/978-3-030-00374-6\_36
- 8 **Stolfi, D. H.**, Cintrano, C., Chicano, F. & Alba, E. (2018b). Natural Evolution Tells Us How to Best Make Goods Delivery: Use Vans. In *Proceedings of the Genetic and Evolutionary Computation Conference Companion* (pp. 308–309). GECCO '18. Kyoto, Japan: ACM. doi:10.1145/3205651.3205764
- 9 Alcaraz, C., Abdo, E., Halir, R., Toutouh, J., Ruiz, M. & **Stolfi, D. H.** (2017). Gamification to Fight Lack of Motivation and Heterogeneity in Engineering. In *Edulearn17 proceedings* (pp. 3662–3668).

9th International Conference on Education and New Learning Technologies. IATED.  
doi:10.21125/edulearn.2017.1794

- 10 **Stolfi, D. H.** & Alba, E. (2017). Computing new optimized routes for gps navigators using evolutionary algorithms. In *Proceedings of the genetic and evolutionary computation conference* (pp. 1240–1247). GECCO '17. Berlin, Germany: ACM. doi:10.1145/3071178.3071193
- 11 **Stolfi, D. H.**, Armas, R., Alba, E., Aguirre, H. & Tanaka, K. (2016). Fine tuning of traffic in our cities with smart panels: The quito city case study. In *Proceedings of the genetic and evolutionary computation conference 2016* (pp. 1013–1019). GECCO '16. Denver, Colorado, USA: ACM. doi:10.1145/2908812.2908868
- 12 **Stolfi, D. H.** & Alba, E. (2015b). Smart Mobility Policies with Evolutionary Algorithms. In *Proceedings of the 2015 on genetic and evolutionary computation conference* (pp. 1287–1294). GECCO '15. New York, NY, USA: ACM. doi:10.1145/2739480.2754742
- 13 **Stolfi, D. H.** & Alba, E. (2015c). Un Algoritmo Evolutivo para la Reducción de Tiempos de Viaje y Emisiones Utilizando Paneles LED. In *X congreso español sobre metaheurísticas, algoritmos evolutivos y bioinspirados* (pp. 27–34). MAEB 2015. Mérida - Almendralejo.
- 14 **Stolfi, D. H.** & Alba, E. (2014a). Eco-friendly Reduction of Travel Times in European Smart Cities. In *Proceedings of the 2014 conference on genetic and evolutionary computation* (pp. 1207–1214). GECCO '14. New York, NY, USA: ACM. doi:10.1145/2576768.2598317
- 15 **Stolfi, D. H.** & Alba, E. (2013a). Red Swarm: Smart Mobility in Cities With EAs. In *Proceeding of the fifteenth annual conference on genetic and evolutionary computation conference* (pp. 1373–1380). GECCO '13. New York, NY, USA: ACM. doi:10.1145/2463372.2463540

## Books and Chapters

- 1 **Stolfi, D. H.** & Alba, E. (2019). Chapter 14 - sustainable road traffic using evolutionary algorithms. In *Sustainable transportation and smart logistics* (pp. 361–380). Elsevier. doi:10.1016/B978-0-12-814242-4.00014-4
- 2 **Stolfi, D. H.**, Alba, E. & Yao, X. (2017). Predicting Car Park Occupancy Rates in Smart Cities. In *Smart cities: Second international conference, smart-ct 2017, Málaga, Spain, June 14-16, 2017, proceedings* (pp. 107–117). Cham: Springer International Publishing. doi:10.1007/978-3-319-59513-9\_11
- 3 Cintrano, C., **Stolfi, D. H.**, Toutouh, J., Chicano, F. & Alba, E. (2016). CTPATH: A Real World System to Enable Green Transportation by Optimizing Environmentally Friendly Routing Paths. In *Smart cities: First international conference, smart-ct 2016, Málaga, Spain, June 15-17, 2016, proceedings* (pp. 63–75). Cham: Springer International Publishing. doi:10.1007/978-3-319-39595-1\_7
- 4 **Stolfi, D. H.** & Alba, E. (2015a). An Evolutionary Algorithm to Generate Real Urban Traffic Flows. In *Advances in artificial intelligence* (Vol. 9422, pp. 332–343). Lecture Notes in Computer Science. Springer International Publishing. doi:10.1007/978-3-319-24598-0\_30
- 5 **Stolfi, D. H.** & Alba, E. (2013b). Reducing Gas Emissions in Smart Cities by Using the Red Swarm Architecture. In *Advances in artificial intelligence* (Vol. 8109, pp. 289–299). Lecture Notes in Computer Science. Springer Berlin Heidelberg. doi:10.1007/978-3-642-40643-0\_30
- 6 **Stolfi, D. H.** & Gálvez Rojas, S. (2011). *CoMVeT - Control Mental de Vehículos Teledirigidos*.
- 7 **Stolfi, D. H.** & Gálvez Rojas, S. (2010). *Mundos Virtuales 3D con VRML97*.

## Projects

- 2018 – 2021    **HUNTED:** Heterogeneous multi-swarms of UNmanned auTonomous systEms for mission Deployment, ONRG N62909-18-1-2176.
- 2018 – 2020    **6city:** Cross-Intelligence for Smart Cities, TIN2017-88213-R.
- 2017 – 2018    **CI-RTI:** Research Thematic Network on Smart Cities, TIN2016-81766-REDT.

## **Projects (continued)**

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- 2015 – 2018    **MoveON:** Holistic Intelligence, and Smart Mobility, TIN2014-57341-R.
- 2015    **maxCT:** Smart Mobility: Wi-Fi, Routes & Pollution, OTRI #8.06/5.47.4356.
- 2012 – 2014    **roadME:** Fundamentals for Real World Applications of Metaheuristics: the Vehicular Network Case, TIN2011-28194.
- 2009 – 2013    **PATIO:** Collaborative Learning and User Modelling Techniques Applied to Multicultural Integration, P08-TIC-4273.
- 2009 – 2011    **SCALE@RN:** Person Centered Adaptive and Scalable Learning Contents., TSI-020311-2009-6.

## **Stays Abroad**

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- 2016    **University of Birmingham:** CERCIA, Centre of Excellence for Research in Computational Intelligence and Applications, Birmingham, U.K. (3 months)
- 2015    **Shinshu University:** Faculty of Engineering, Nagano, Japan (1 month)

## **Grants / Fellowships / Awards**

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- 2019    **Car Park Occupation and Prediction:** 1st Contest of Reuse of Open Data 2019 – Malaga local council, Spain.
- 2014    **FPU:** Spanish research and teaching fellowship (FPU13/00954) from the Spanish Ministry of Education, Culture and Sports.

## **Teaching Experience**

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- 2019 – 2021    **Optimisation Techniques:** Master 2, University of Luxembourg.
- 2017 – 2018    **Recursos Informáticos Aplicados a la Traducción e Interpretación:** Facultad de Filosofía y Letras, University of Malaga, 33.2 Hs.
- 2016 – 2017    **Programación II:** ETSI Telecomunicación, University of Malaga, 18.6 Hs.  
                  **Informática Aplicada a la Gestión Pública:** Facultad de Comercio y Gestión, University of Malaga, 13.9 Hs.
- 2013 – 2014    **Lenguajes de Programación y Procesadores:** UNED, Malaga, 8 Hs.

## **Administrative/Organizational Experience**

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- 2021    **Program Committee:** Genetic and Evolutionary Computation Conference: GECCO 2021, Lille, France
- 2020    **Program Committee:** The 4<sup>th</sup> International Workshop on Synergy of Parallel Computing, Optimization and Simulation: PaCOS 2020, Barcelona, Spain
- Program Committee:** Genetic and Evolutionary Computation Conference: GECCO 2020, Cancun, Mexico
- Workshop Committee Member:** 34<sup>th</sup> IEEE International Parallel and Distributed Processing Symposium: IPDPS 2020 Workshop, New Orleans, USA
- Program Committee:** 12<sup>th</sup> Asian Conference on Intelligent Information and Database Systems: ACID 2020, Phuket, Thailand
- 2019    **Program Committee:** Genetic and Evolutionary Computation Conference: GECCO 2019, Prague, Czech Republic

## **Administrative/Organizational Experience (continued)**

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- 2018    **Program Committee:** Genetic and Evolutionary Computation Conference: GECCO 2018, Kyoto, Japan
- 2017    **Program Committee:** Genetic and Evolutionary Computation Conference: GECCO 2017, Berlin, Germany
- Organizing Committee:** International Conference on Smart Cities: SmartCT'17, Malaga, Spain
- Organizing Committee:** Second International Summer School on Search-Based Software Engineering: SS-SBSE 2017, Malaga, Spain
- Organizing Committee:** Fourth Euro-China Conference on Intelligent Data Analysis and Applications: ECC 2017, Malaga, Spain
- 2016    **Program Committee:** Genetic and Evolutionary Computation Conference: GECCO 2016, Denver, Colorado, USA
- Organizing Committee:** International Conference on Smart Cities: SmartCT'16, Malaga, Spain

## **Skills and Interests**

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- Languages    **Spanish** (native speaker), **English** (C1 proficient user).
- Coding      **Java**, **Python**, **C**, **C++**, **R**, **MATLAB**, **L<sup>A</sup>T<sub>E</sub>X**, **PHP**, **JavaScript**, **Delphi**, **Bash**, **VRML97**.
- Databases    **MySQL**, **PostgreSQL**, **ORACLE**, **SQLite**.
- Web Dev     **HTML**, **CSS**, **JavaScript**, **Apache Web Server**, **Tomcat Web Server**.
- Others      **Combinatorial Optimization**, **Metaheuristics**, **Bio-inspired Algorithms**, **GNU/Linux**, **ARDUINO**, **Microchip Microcontrollers**, **Brain-Computer Interface (BCI)**, **HTCondor (High Throughput Computing)**.
- Misc.        **Academic research**, **Teaching**, **Robotics**.
- Hobbies      **Sci-Fi books and TV series**, **Photography**, **Simulation video games**.