CAROLINA CRESPI

(39)3884352461 | carolina.crespi@hotmail.it | Linkedin | Scholar | Github | My Web Site

SUMMARY

PhD in Computer Science with a multidisciplinary background and experience in managing interdisciplinary projects. My research focuses on Artificial Intelligence, optimization, and agent-based modeling, with a strong track record of publications and international conference presentations. Skilled in data analysis, visualization, and translating complex concepts into clear insights.

EDUCATION

PhD in Computer Science, University of Catania — Catania, **June 2024**
Master's degree in physics, University of Catania — Catania, **Mar 2020**
Bachelor's degree in physics, University of Catania — Catania, **Nov 2013**

WORK EXPERIENCE

Department of Mathematics and Computer Science, University of Catania — **Feb 2025 - ongoing**
Postdoc Research Fellow at Complex Intelligent Systems (CIS) Research Group

- Conducting advanced research on dynamic optimization and collective behaviors

University of Catania — **Oct 2020 - Jan 2024**
PhD Fellow at Complex Intelligent Systems (CIS) Research Group

- Springer, IEEE, Elsevier, MDPI
- Conducted research on Swarm Intelligence, Collective Behaviours and Optimization Algorithms
- Developed agent-based models
- Authored and reviewed papers published in international scientific journals
- Organized and presented at international conferences, workshops and schools
- Delivered lectures in several courses, focusing on AI, computational models, and scientific methodologies
- Research Collaboration: Prof. Angelo Cangelosi (University of Manchester) and Dr. Marta Romeo (Heriot-Watt University) on trust in multi-agent systems

Syracuse Academy — **21 Nov 2024**
Guest Lecture

- Exploring Artificial Intelligence: From Concepts to applications

ONLUS Mediterraneo Sicilia Europa — **Sep 2018 - May 2019**
Mathematics and Physics Tutor

- Provided personalized support to students for completing homework
- Created customized learning programs and objectives
- Collaborated with teachers to define educational and training goals

Campus Athena — **Sep 2014 - Jul 2017**
Mathematics and Physics Tutor

- Assisted students with homework and offered emotional support to boost their abilities
- Developed and taught a preparatory course for medical entrance exams

OTHER EXPERIENCES

Scientific exhibition "Diamo i numeri" — Catania, **May 2019**
Scientific guide
LiveUniCT — Catania, **May 2012 - Dec 2015**
Photographer, graphic designer and journalist
StartUP Academy — Catania, **Mar 2014 - May 2014**
Participant

- Completed professional courses in business strategies, including SWOT analysis and business planning, with the LiveUniCT team

SKILLS

Hard: Python, R, NetLogo, LaTeX, Excel, PowerPoint, Agent-based models, Data Analysis, Review
Soft: Cross-disciplinary knowledge transfer, public speaking, Project Management, Teamwork, Organization
Creative: Visual Thinking, Prompt Engineering, AI-driven Design, AI-driven Code

LANGUAGES

Italian: native
English: confident

CAROLINA CRESPI

(39)3884352461 | carolina.crespi@hotmail.it | Linkedin | Scholar | Github | My Web Site

CONFERENCES, WORKSHOPS, SUMMER SCHOOLS

- Chair – Workshop on Big Optimization (WBO 2025), 31 Jul – 1 Aug 2025, Catania, Italy
- TPC Member – 5th International Conference on Computational Intelligence (ICCI 2024), 24-26 December 2024, Surat, India
- PC Member - 27th European Conference on Artificial Intelligence (ECAI 2024), 19 - 24 Oct 2024, Santiago de Compostela, Spain
- Chair, Speaker, and Organizing Committee - Metaheuristics Summer School (MESS 2024), 15 - 18 Jul 2024, Catania, Italy
- Speaker - 18th Social Simulation Conference (SSC 2023), 8 - 10 Sept 2023, Glasgow, United Kingdom
- Seminar – Research Project, 13 Jan 2023, ETH Zurich, Switzerland (Online)
- Speaker - 10th International Conference on Bioinspired Optimization Methods and Their Applications (BIOMA 2022), 17 - 18 Nov 2022, Maribor, Slovenia
- Organizing Committee - International Conference on Optimization and Learning (OLA 2022), 18 - 20 Jul 2022, Siracusa, Italy
- Organizing Committee and Speaker - 14th Metaheuristics International Conference (MIC 2022), 11 - 14 Jul 2022, Siracusa, Italy
- Organizing Committee - International Conference on Optimization and Learning (OLA 2021), 20 - 21 Jun 2021, Catania, Italy (Online)
- Organizing Committee - Metaheuristics Summer School (MESS 2020+1), 15 - 18 Jun 2021, Catania, Italy (Online)
- Speaker - 9th International Conference on Bioinspired Optimization Methods and Their Applications (BIOMA 2020), 19 - 20 Nov 2020, Brussels, Belgium (Online)
- Speaker - 7th International Conference on Soft Computing & Machine Intelligence (ISCMI 2020), 14 - 15 Nov 2020, Stockholm, Sweden (Online)
- Speaker - XIV International Workshop on Artificial Life and Evolutionary Computation (WIVACE 2019), 18 - 20 Sept 2019, Rende, Italy

PUBLICATIONS

Submitted and Under Review

- Crespi C, Pavone M. *A Novel ACO-Based Framework for Modeling Collective Behavior: Insights and Applications* In*:* Artificial Intelligence (AIJ)

International Journal

- Crespi, C., Cutello, V., Pavone, M., & Zito, F. (2024). An agent framework to explore pathfinding strategies in maze navigation problem. *Le Matematiche*, *79*(2), 555-583. https://doi.org/10.4418/2024.79.2.17
- Cavallaro, C.; Crespi, C.; Cutello, V.; Pavone, M.; Zito, F. Group Dynamics in Memory-Enhanced Ant Colonies: The Influence of Colony Division on a Maze Navigation Problem. Algorithms 2024, 17, 63. https://doi.org/10.3390/a17020063
- Carolina Crespi, Rocco A. Scollo, Georgia Fargetta, Mario Pavone, A sensitivity analysis of parameters in an agent-based model for crowd simulations, Applied Soft Computing, Volume 146, 2023, 110684, ISSN 1568-4946, https://doi.org/10.1016/j.asoc.2023.110684.

Refereed Conference

- Crespi, C., Pavone, M. (2024). Does a Group's Size Affect the Behavior of a Crowd? An Analysis Based on an Agent Model. In: Elsenbroich, C., Verhagen, H. (eds) Advances in Social Simulation. ESSA 2023. Springer Proceedings in Complexity. Springer, Cham. https://doi.org/10.1007/978-3-031-57785-7_31
- Crespi, C., Fargetta, G., Pavone, M., Scollo, R.A. (2023). An Agent-Based Model for Crowd Simulation. In: De Stefano, C., Fontanella, F., Vanneschi, L. (eds) Artificial Life and Evolutionary Computation. WIVACE 2022. Communications in Computer and Information Science, vol 1780. Springer, Cham. https://doi.org/10.1007/978-3-031-31183-3_2
- Crespi, C., Scollo, R.A., Fargetta, G., Pavone, M. (2023). How a Different Ant Behavior Affects on the Performance of the Whole Colony. In: Di Gaspero, L., Festa, P., Nakib, A., Pavone, M. (eds) Metaheuristics. MIC 2022. Lecture Notes in Computer Science, vol 13838. Springer, Cham. https://doi.org/10.1007/978-3-031-26504-4_14
- Crespi, C., Fargetta, G., Pavone, M., Scollo, R.A. (2022). An Agent-Based Model to Investigate Different Behaviours in a Crowd Simulation. In: Mernik, M., Eftimov, T., Črepinšek, M. (eds) Bioinspired Optimization Methods and Their Applications. BIOMA 2022. Lecture Notes in Computer Science, vol 13627. Springer, Cham. https://doi.org/10.1007/978-3-031-21094-5_1
- Crespi, C., Fargetta, G., Pavone, M., Scollo, R.A., Scrimali, L. (2020). A Game Theory Approach for Crowd Evacuation Modelling. In: Filipič, B., Minisci, E., Vasile, M. (eds) Bioinspired Optimization Methods and Their Applications. BIOMA 2020. Lecture Notes in Computer Science(), vol 12438. Springer, Cham. https://doi.org/10.1007/978-3-030-63710-1_18
- C. Crespi, R. A. Scollo and M. Pavone, "Effects of Different Dynamics in an Ant Colony Optimization Algorithm," 2020 7th International Conference on Soft Computing & Machine Intelligence (ISCMI), Stockholm, Sweden, 2020, pp. 8-11, doi: 10.1109/ISCMI51676.2020.9311553

Refereed Abstract/Extended Abstract

- C. Crespi, A.G. Spampinato, R. A. Scollo, M. Pavone. *ACOLABS: An Ant Colony for Labyrinth Solving*. In: XIV International Workshop on Artificial Life and Evolutionary Computation (WIVACE 2019).
- C. Crespi, G. Fargetta, M. Pavone, R. A. Scollo, *An agent-based model for crowd simulation*, In: XVI International Workshop on Artificial Life and Evolutionary Computation (WIVACE2022)
- Cavallaro, A., Crespi, C., Cutello, V., Pavone, M., & Zito, F. *Structural Health Monitoring by Combining Metaheuristics and Machine Learning Techniques*.(ITAL-IA 2022)

Catania
04/03/2025

Carolina Crespi