

Luigi Rovito



I'm a computer engineer from Italy. I was born in . My main research interests consist in Data Science, Machine Learning, and Evolutionary Computation.

Employment History

- 15/02/2021 – 06/07/2021  **Cluster Reply S.r.l., IT Consultant, Trieste (Remote working).**
Overview: I designed, developed, and tested software based on Microsoft technologies (Azure, Power Platform, SQL Server) in a work-flow management project for a major insurance company. Additionally, I managed the Integration Testing phases by covering the role of middleman among all stakeholders involved.

Education

- 01/11/2021 –  **Ph.D., University of Trieste, Applied Data Science and Artificial Intelligence, Trieste.**
Topic: Enhancement and Application of Genetic Programming-based Techniques for Cybersecurity and Interpretable Machine Learning.
Overview: I am currently working on the enhancement of Genetic Programming-based methods for solving Symbolic Regression problems. Moreover, I am studying how to apply these approaches in contexts such as bot detection and stream ciphers design for cryptography purposes. Finally, I am investigating the potential of these approaches when it comes to discover interpretable models according to human feedback.
Extra: As part of my scholarship, I worked with Generali Cybersecurity to design, develop, and test new log anomaly detection techniques for identifying meaningful deviations from normal behavior of system users. Moreover, I investigated the employment of Large Language Models (e.g., ChatGPT) for solving problems related to Cybersecurity scenarios (e.g., spear phishing attacks, prompt injection).
- 21/12/2018 – 11/12/2020  **M.Sc., University of Calabria, Computer Engineering, Cosenza.**
Mark: 110/110 cum Laude.
Field: Big Data Analytics and Data Science.
Thesis: Modularity-driven Ensemble-based Multilayer Community Detection with Node Embeddings.
- 25/09/2014 – 06/12/2018  **B.Sc., University of Calabria, Computer Engineering, Cosenza.**
Mark: 100/110.
Thesis: Ethereum Log Analysis using ELK Stack.

Research Publications

Journal Articles

-  L. Bonin, **L. Rovito**, A. De Lorenzo, and L. Manzoni, "Cellular geometric semantic genetic programming," *Genetic Programming and Evolvable Machines*, vol. 25, no. 1, pp. 1–32, 2024.  DOI: 10.1007/s10710-024-09480-8.

- 2 G. Nadizar, **L. Rovito**, A. De Lorenzo, E. Medvet, and M. Virgolin, “An analysis of the ingredients for learning interpretable symbolic regression models with human-in-the-loop and genetic programming,” *ACM Trans. Evol. Learn. Optim.*, vol. 4, no. 1, Feb. 2024. [🔗](#) DOI: 10.1145/3643688.
- 3 **L. Rovito**, A. De Lorenzo, and L. Manzoni, “Discovering non-linear boolean functions by evolving walsh transforms with genetic programming,” *Algorithms*, vol. 16, no. 11, p. 499, 2023. [🔗](#) DOI: 10.3390/a16110499.
- 4 **L. Rovito**, L. Bonin, L. Manzoni, and A. De Lorenzo, “An evolutionary computation approach for twitter bot detection,” *Applied Sciences*, vol. 12, no. 12, p. 5915, 2022. [🔗](#) DOI: 10.3390/app12125915.

Conference Proceedings

- 1 G. Pinna, D. Ravalico, **L. Rovito**, L. Manzoni, and A. De Lorenzo, “Enhancing large language models-based code generation by leveraging genetic improvement,” in *Genetic Programming*, M. Giacobini, B. Xue, and L. Manzoni, Eds., Cham: Springer Nature Switzerland, 2024, pp. 108–124, ISBN: 978-3-031-56957-9. [🔗](#) DOI: 10.1007/978-3-031-56957-9_7.
- 2 **L. Rovito**, A. De Lorenzo, and L. Manzoni, “Evolution of walsh transforms with genetic programming,” in *Proceedings of the Companion Conference on Genetic and Evolutionary Computation*, ACM, 2023, pp. 2386–2389. [🔗](#) DOI: 10.1145/3583133.3596317.

Skills

Languages	📖 Italian (native), English.
Coding	📖 Java, Python, R, C, SQL, XML, \LaTeX , JSON, BPMN.
Databases	📖 MySQL, SQLserver.
Misc.	📖 Academic research, consultation, paper structuring, experimental design, \LaTeX typesetting, publishing.
Soft	📖 Flexibility, teamwork, information management.

Miscellaneous Experience

Schools

- 17/07/2023 – 21/07/2023 📖 **DeepLearn IRDTA Summer School**, *Participant*, Las Palmas de Gran Canaria.
- 13/07/2023 – 14/07/2023 📖 **GECCO 2023 Summer School**, *Participant*, Lisbon.

Conferences

- 15/07/2023 – 16/07/2023 📖 **GECCO 2023**, *Speaker*, Lisbon.
Presented paper: Evolution of Walsh Transforms with Genetic Programming.
- 03/04/2024 – 05/04/2024 📖 **EvoStar 2024**, *Speaker*, Aberystwyth.
Presented paper: Enhancing Large Language Models-based Code Generation by Leveraging Genetic Improvement.

Updated on 24/04/2024.

I authorize the processing of personal data contained in my curriculum vitae pursuant to Legislative Decree 101/2018 and art. 13 GDPR (EU Regulation 2016/679) for the purposes of personnel research and selection.