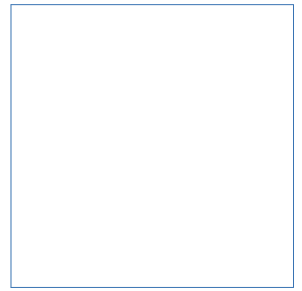


Gabriele Romano

Curriculum Vitae



Bio and Interests

Gabriele Romano was born in Lavagna, Italy in 1997. He received his Bachelor Degree in Industrial and Information Engineering at the Politecnico di Milano and Master Degree in Computer Engineering at the University of Genoa, respectively in 2021 and 2023. His main areas of interest are theoretical aspects, development, and real-world applications of Large Language Models and the Automatic Movement Analysis using Machine Learning methods.

Publications

In Conference Proceedings

- 2023 Giorgio Gnecco, Martina Fausto, Gabriele Romano, Gualtiero Volpe, and Antonio Camurri. "Improving output visualization of an algorithm for the automated detection of the perceived origin of movement". In *International Conference on Intelligent Technologies for Interactive Entertainment*, pages 96–106. Springer, Conference INTETAIN 2023, 27-27 November.

Research Experience

University of Genoa

Dec,2022 – Mar,2023 **Prerequisite learning from video lessons**, DR N.4894/2022 [↗](#) University of Genoa.

Description : I integrated a machine learning pretrained model, used for the identification of video frames with slides, in an online platform named Edurell [↗](#). This platform is able to perform semantic analysis on educational videos by extracting concepts and constructing knowledge graphs from the linked data obtained. Then I developed an algorithm for the recognition of text in frames classified as "with slides" by that model, group the frames that present the same slide and distinguish between the content of the slide and its title. From the title of each slide, a keyword is selected and used to refine the knowledge graph of the concepts explained in the video. This is performed by merging the concepts found with the pre-existing method of extraction, focused on the audio's transcript. This work aims to improve the identification of prerequisite relationships with the key concepts, without human intervention. Furthermore, the keywords found were enriched with metadata about the on-screen words duration and relative position. Lastly, I deployed the extraction algorithm as a separate component on a virtual machine with parallelization capabilities to run in the background while users navigate the website, and I graphically integrated the component in the project's public website. A document summarizing the work is available in the GitHub repo of the project [↗](#).

Work Experience

Feb,2024– Ongoing **IT Consultant**, *Widecons S.R.L*, Via Assarotti, 56/1A – 16122 Genova.
Offering consultancy services on large language models to a lead generation company.

Education

2021–2023 **Master Degree in Computer Engineering**, *University of Genoa*, Artificial Intelligence and Human-centered Computing.

Score : 110/110

Thesis Title : "A comparative analysis across algorithmic, machine learning, and visual paradigms for the automatic detection of the perceived origin of full-body human movement." Gabriele Romano and Martina Fausto [↗](#)

Description : Our work involved the integration and comparison of two different approaches to solve a classification problem. One based on a pre-existing pipeline made of an unsupervised clustering algorithm followed by a graph based classification method; the other involved the development of a supervised learning method from the dataset creation, feature extraction, model selection, hyperparameters tuning, training, and model evaluation. These two methods were compared in terms of strengths and weaknesses of each approach. Lastly we adapted a bipartite matching algorithm over the graph built with the first approach to improve visualization aspects of the movement and enhance the manual validation process.

Supervisors : Luca Oneto and Gualtiero Volpe

2016–2021 : **Bachelor Degree in Industrial and Information Engineering**, *Politecnico di Milano*, Informatics.

Score : 84/110

Thesis Project: Digital trasposition of the Santorini board game (2016) by Roxley Games. [↗](#)

Description : I collaborated with two other colleagues to develop a digital version of the board game "Santorini." We adapted the game mechanics from the base game, incorporating a few additional mechanics for the cards' abilities. The interface is available in both Graphical User Interface and Command Line Interface formats. The game was implemented to be managed through a single server - multiple clients paradigm, allowing multiple players to connect locally to a server that handles the game logic and communicates the game state to the clients.

2011–2016 : **Secondary School Diploma**, *Liceo Scientifico Marconi-Delpino*, Chiavari.
Presentation of the movie "Inside Out" by Disney [↗](#)

Score : 70/100

Computer skills

Programming Languages Python, MATLAB, C, C#, Java, \LaTeX

Web Technologies HTML, CSS, Javascript

Database SQL, MongoDB, Neo4j, Cassandra

Office Word, Excel, PowerPoint

Languages

Level

English Reading: C1, Listening: B2, Writing: B2, Speaking: B2

Italian Native Language

Certifications

Sep,2021 TOEIC: proficiency C1 in Reading and B2 in Listening, Writing and Speaking