

Stefano Genetti

PHD STUDENT IN INDUSTRIAL INNOVATION

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Education

University of Trento

Trento, Italy

MASTER'S DEGREE IN COMPUTER SCIENCE

Sept. 2022 - Oct. 2024

- **GPA:** 29.71/30
- **Grade** 110/110 *cum laude* | **Final Dissertation:** "Interpretable DTs through evolutionary RL for SCM" - Supervisor: professor Giovanni Iacca
- **Relevant coursework:** Data Mining, Distributed Systems, Blockchain, Machine Learning, Deep Learning, Computer Vision, Bio-Inspired Artificial Intelligence, Low-power wireless networking for the Internet of Things

BACHELOR'S DEGREE IN COMPUTER SCIENCE

Sept. 2019 - Sept. 2022

- **GPA:** 29.59/30
- **Grade** 110/110 *cum laude* | **Final Dissertation:** "Hypergraph Summarization" - Supervisor: professor Alberto Montresor - 📄
- **Relevant coursework:** Algorithms and Data Structures, Fundamentals of Robotics, Introduction to Machine Learning, Software Engineering, Systems and Networks, Databases, Operating Systems, Computer Architectures

Experience

Adige Spa (BLM Group)

Levico Terme, Italy

PHD STUDENT IN INDUSTRIAL INNOVATION

Nov. 2024 - ongoing

- Research on Industry 4.0 solutions at Adige (BLM Group), a global leader in CNC laser cutting machines, focusing on interpretable, interactive AI for production scheduling through simulation-optimization and evolutionary reinforcement learning with human-in-the-loop. Design and implementation of a supply chain digital twin to support data-driven decision-making. Teaching assistant for Distributed Systems, Computer Architectures, and AI for Medicine. Supervisor of students' projects on AI applications in industrial contexts.

University of Trento - Research project 📄 📄

Trento, Italy

INFLUENCE MAXIMIZATION IN HYPERGRAPHS USING MULTI-OBJECTIVE EVOLUTIONARY ALGORITHMS - MAIN AUTHOR

Jan. 2024 - Jun. 2024

- Research Paper. Conference: PPSN 2024. Developed a novel multi-objective evolutionary algorithm incorporating smart initialization and hypergraph-aware mutation to solve the Influence Maximization problem on hypergraphs. Achieved state-of-the-art results in hypervolume and solution diversity across nine real-world datasets and three propagation models, outperforming five baseline algorithms.

E-Agle Trento Racing Team - 📄

Trento, Italy

MEMBER OF THE SOFTWARE DRIVERLESS TEAM (FORMULA STUDENT)

Oct. 2022 - Dec. 2024

- My primary role involved creating a Visual SLAM solution that combines the ORB-SLAM3 algorithm with YOLO. This solution enables vehicle localization on the track while simultaneously identifying cones and their coordinates to construct a map of the circuit. The project won the Best Overall Project at the Ready Tensor Computer Vision Projects Expo 2024 [link].

Relevant Projects

From words to bounding boxes: exploring visual grounding using CLIP - 📄

PyTorch

UNIVERSITY PROJECT

June 2023 - Sept. 2023

- Fine-tuning of CLIP to solve the problem of Referring Expression Comprehension by linking natural language descriptions to images to localize target objects. Three distinct architectures have been proposed: a conventional fine-tuning approach, a contrastive learning method inspired by the "fine-tune like you pretrain" concept, and a self-attention-based approach. We assessed the performance on the RefCOCOg dataset.

Distributed Key-Value Store with Data Partitioning and Replication - 📄

Java, Akka

UNIVERSITY PROJECT

July. 2023 - Aug. 2023

- Design and development of a distributed system that implements a peer-to-peer key-value storage service inspired by Amazon Dynamo. The distributed hash table efficiently balances data among interconnected peer nodes, ensuring reliability and accessibility through key-based partitioning. The client nodes perform read and write operations on the distributed database which ensures sequential consistency.

Enhancing Certificate Management through Blockchain Technology - 📄

Solidity

UNIVERSITY PROJECT

June 2023 - July 2023

- Development of a distributed application to streamline certificate management for groups using a private blockchain, IPFS, and an Express-based web service.

Evaluating Dataset portions based on query logs - 📄

Python

UNIVERSITY PROJECT

Nov. 2022 - Jan. 2023

- Development of a sophisticated query recommendation system that suggests queries leading to user-relevant data. We propose a hybrid solution which combines content-based and collaborative methods mitigating the limitations of both approaches.

A mobile robot to pick up LEGO bricks - 📄

ROS, C++, Python

UNIVERSITY PROJECT

Dec. 2021 - Feb. 2022

- Exploration of a known environment with a mobile robot equipped with a 6-DoF-mainpulator in order to localize and classify LEGO bricks to be taken to a proper basket according to some specifications.