Lorenzo **Steccanella**

About me

Specializing in Machine Learning and Deep Learning, combining robust academic research (PhD) with hands-on industry experience in optimizing real-world systems.

Personal Information

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Areas

Artificial Intelligence
Machine Learning
Reinforcement Learning
Deep Learning
Computer Vision

Core Skills

Python / Java / C++ / SQL
/ PyTorch / TensorFlow / LLM
/ RLlib / Gym / OpenCV
/ Pandas / NumPy

DevOps & Tools

AWS / Docker / Git
FastAPI / CI/CD / Jetkins
ROS

@ personal webpage
Github page
Linkedin page
Google Scholar

Working Experiences

2023 March –

Machine Learning Research Scientist
ACCIONA INNOVATION DEPARTMENT - UPF · Barcelona
Area: Reinforcement Learning, Deep Learning.
Achievements: Reduction in power consumption up to 18%.
Tasks: Applied Reinforcement Learning techniques to control and optimize wastewater treatment plants.

2021 – 2023

Teaching Assistant
BARCELONA SCHOOL OF ECONOMICS SUM. SCHOOL · Barcelona
Area: NLP (GPT, Transformers), Graph Neural Network, Computer Vision, Reinforcement Learning.
Tasks: Developed course material and taught practical sessions in collaboration with Prof. Vicenç Gómez and Prof. Anders Jonsson.

2018 – 2023

Ph.D. and Teaching Assistant
UNIVERSITAT POMPEU FABRA · Barcelona
Area: Reinforcement Learning, Deep Learning.
Tasks: Developed novel Reinforcement Learning algorithms to improve sample efficiency and exploration in sparse reward settings. Led theory and lab sessions, graded assignments, provided one-to-one assistance.

2018

Research Intern
BLUE BRAIN PROJECT (EPFL) · Lausanne
Area: Deep Learning, Generative Models, Computer Vision.
Achievements: Improved speed of rendering up to 60fps with 2k resolution.
Tasks: Developed VAE and GAN models for image reconstruction.

2016 – 2018

Research Engineer
EUROPEAN PROJECT INTCATCH 2020 · Verona
Area: Localization, Computer Vision, Deep Learning, Embedded Systems.
Achievements: Autonomous navigation without the need of teleoperators.
Tasks: Developed localization algorithms based on Kalman Filters and Particle Filters. Led system development for waterline and obstacle detection.

Degrees

2018 - 2023

Ph.D. Reinforcement Learning
· Universitat Pompeu Fabra 🏛
Thesis advisor: Prof. Anders Jonsson
Thesis: Representation Learning for Hierarchical Reinforcement Learning

2014 - 2016

M.Sc. in Robotics and Intelligent Systems
· University of Rome, La Sapienza 🏛
Thesis advisors: Prof. Daniele Nardi, Prof. Alessandro Farinelli
Thesis: Coloured Petri Net Plans for cooperative multi-robot systems

2014 - 2015

M.Sc. in Robotics and Intelligent Systems
· University of Örebro 🏛
Thesis advisor: Prof. Martin Magnusson
Thesis: Fast, Continuous State Path Smoothing for Waist Articulated Vehicle

2010 - 2013

B.Sc. in Bioinformatics
· University of Verona 🏛
Thesis advisor: Prof. Manuele Bicego
Thesis: Approcci per l'analisi del segnale cerebrale p300 per la realizzazione di un'interfaccia brain computer (bci)
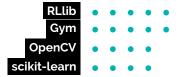
Technical Skills

Programming

Python	● ● ● ● ●
C++	● ● ● ●
Java	● ● ● ●
SQL	● ● ● ●
Bash	● ● ● ●

JavaScript	● ● ●
LaTeX	● ● ●
Jupyter Notebook	● ● ● ● ●

ML

PyTorch	● ● ● ● ●
TensorFlow	● ● ● ●
NumPy	● ● ● ● ●
Pandas	● ● ● ● ●

RLlib	● ● ● ● ●
Gym	● ● ● ● ●
OpenCV	● ● ● ●
scikit-learn	● ● ● ●

DevOps & Tools

AWS	● ● ● ●
Docker	● ● ● ●
Git	● ● ● ● ●
CI/CD	● ● ● ●

Jenkins	● ● ● ●
ROS	● ● ● ●
Spring Boot	● ● ● ●
FastAPI	● ● ● ●

Others

RLHF, RAG, Gazebo, NVIDIA Jetson, Jira, Trello, Raspberry Pi, Conda, Grafana, WeightsBiases.

Certificates

2017 **Self-Driving Car Engineer Nanodegree from Udacity.** Covered computer vision, deep learning, sensor fusion, localization, and control for autonomous vehicles. View Certificate

Languages

English	C2	● ● ● ● ●
Spanish	C1	● ● ● ● ○
Italian	C2	mother tongue

Selected Publications

2023 Asymmetric Norms to Approximate the Minimum Action Distance
GCRL Workshop NeurIPS 2023.

2022 State Representation Learning for Goal-Conditioned Reinforcement Learning
ECML PKDD 2022.

2021 Hierarchical Representation Learning for Markov Decision Processes
IJCAI 2021 Generalization in Planning Workshop (Best Spotlights Talk and Poster Award)
CoLLAs 2023.

2020 Hierarchical reinforcement learning for efficient exploration and transfer
4th Lifelong Learning Workshop at ICML 2020.

2020 Waterline and obstacle detection in images from low-cost autonomous boats
Robotics and Autonomous Systems 124: 103346.

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