Elia **Piccoli**
PhD Student in Computer Science

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Education

PhD in Computer Science, University of Pisa, Italy   *Nov. 2022 - PRESENT*
- Theme: *Reinforcement Learning*
- Supervisor: *Davide Bacciu*
- Co-Supervisor: *Vincenzo Lomonaco*

Master Degree in Computer Science, University of Pisa, Italy   *Sep. 2020 - Oct. 2022*
- Curriculum: *Artificial Intelligence*
- Final Degree: *110/110 cum laude*
- Thesis: *Introducing Unsupervised Skills in Continual Reinforcement Learning Agents*
- Supervisors: *Davide Bacciu - Vincenzo Lomonaco*

Bachelor Degree in Computer Science, University of Verona, Italy   *Sep. 2017 - Jul. 2020*
- Final Degree: *110/110 cum laude*
- Thesis: *Deep Reinforcement Learning for Multi-Agent Navigation*
- Supervisor: *Alessandro Farinelli*

Experience

Teaching Assistant, University of Pisa, Italy   *Feb. 2023 - PRESENT*
- Course: *Computer Architecture and Operating Systems*.
- Hands-on lessons solving exercises in preparation for intercourse exams.

Autonomous Planning Engineer, E-Team Squadra Corse, Pisa   *Oct. 2022 - PRESENT*
- Division: *Driverless*.
- Working on different strategies, using *Reinforcement Learning*, to train the car to complete the different tracks in the Formula Student competition, leveraging information from the camera and some other sensors.
- Study how to deploy and integrate the trained model to the real car.

Returning Officer, Comune di San Giovanni Lupatoto, Verona   *2018 - PRESENT*
- Management and supervision of voting operations, ballot counting and compilation of minutes.

Tutoring, High school and University students   *2016 - PRESENT*
- Worked in total with more than 30 students helping them studying and understanding the topics.
- The subjects space among *Computer Science*, *Math*, *Physics*.

CyberChallengeIT hosted by CINI, University of Verona, Italy   *Feb. 2020 - Jun. 2020*
- After passing the selection, I got to access the course which was divided into two parts: theory and hands-on sessions.
- Learnt about hacking from a theoretical point of view analyzing all the various fields that are strictly correlated to *cybersecurity* (e.g. cryptography, binary exploitation, web hacking etc.).
- Learnt how to approach and analyze different problems, how to spot possible exploits and take advantage of them to retrieve data or access machines.

University Internship, University of Verona, Italy   *Nov. 2019 - Feb. 2020*
- Studied and tested new techniques for Reinforcement Learning (e.g. *Genetic Deep Reinforcement Learning*).
- Created a customizable Unity environment to simulate the agents' actions and train them via *Python* and *Keras* using *ml-agents* tool.
- In depth analysis and comparison of different models using various environments and learning approaches.

High school Stage, Dgroove Srl, Verona   *Jun. 2016 - Jul. 2016*
- Studied the basis of *AngularJs* via some online courses.
- Realized the Front-End and Back-End of a website that was connected to a database in order to retrieve information and display them.

Languages

Italian	*Native speaker*
English	*Fluent*
	First Certificate in English (B2 - 2016)
Spanish	*Basic knowledge*

Skills

Programming Languages	Python, C, C++, Java, MATLAB & Simulink, Bash, SQL
Libraries/Frameworks	Pytorch, Keras, Numpy, Sklearn, Pandas
Markup Languages	HTML, XML, RDF
Softwares	Visual Studio, Git, Microsoft Office, PostgreSQL, Unity, Blender

Projects

Here are reported some of my projects, all of them can be found on my GitHub page.

Avalanche-RL   *2023*
- Branch of the main library *Avalanche*, based on *Pytorch*, it aims at providing an easy implementation of *Continual Reinforcement Learning* benchmarks and experiments.
- It offers implementation of different RL algorithms and all CL plugins or strategies inherited from Avalanche.

SmartPA, GROUP PROJECT   *2021*
- The project was developed in collaboration with *Compagnia Trasporti Toscana (CTT)*. The focus of the project was to improve the document archiving process in Public Administration exploiting Artificial Intelligence.
- We created from scratch a Transformer architecture, using *Python* and *Pytorch*, that would predict the archiving class for the documents. Using real data from the last two years, we were able to obtain models with more than 90% accuracy.

Customer Analysis, GROUP PROJECT   *2021*
- In depth analysis of *Customer Supermarket* dataset which includes tasks such as *clustering*, *classification* and *sequential pattern mining* using *Pandas* and *Python*.

Defect Detection, GROUP PROJECT   *2020*
- Analysis and highlighting of texture defects using *Matlab* and *Spectral Analysis* on images.

Personal Data Treatment

In compliance with the GDPR I hereby authorize you to use and process my personal details contained in this document.