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## Collegio Universitario Renato Einaudi di Torino

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VIA MARIA VITTORIA 39

10123 TORINO - ITALIA

### Call for competition for a prize dedicated to a personal project in academic, educational, non-profit or professional

To Collegio Einaudi and McKinsey & Company.

With this letter I would like to express my keen interest in participating at the competition in question by presenting the project of my master thesis which I am developing at Eurecom, graduate school and research centre located in Sophia Antipolis (Biot, France) at the forefront in the digital sciences, in particular data science and machine learning. I am currently completing this project, the conclusion of my master in Computer Engineering at Politecnico di Torino, where I achieved my bachelor degree with the highest marks: a great satisfaction after years of constant effort and commitment, but above all of curiosity and passion. These two components have always been the propulsive forces that have allowed me to achieve results despite the difficulties and stress that studies lead to face. I am continually looking for a fertile ground in which to apply the knowledge and tools I acquired to develop new skills.

During my master, I deepened many innovative aspects of my professional area, being particularly impressed by the universe of Machine Learning and Artificial Intelligence, areas in which computer science and mathematics mix themselves to emulate the chemistry and deep mechanics of the human mind, without the aim of replacing humanity, but in order to expand its potentialities, enriching it. Precisely for this reason, I decided to invest a semester of my studies in exploring this innovative research field, accepting the challenging thesis proposal of Pietro Michiardi, the head professor of the department of Data Science at Eurecom, in collaboration with Elena Baralis, professor of the Polytechnic of Turin. The main project of the thesis consists in the application of Deep Reinforcement Learning algorithms to teach a small robot how to drive from scratch on a track, using only its experiences. Reinforcement Learning is a branch of Machine Learning that takes care of resolving problems of decision-making through which an agent learns to improve his choices in performing a given task based on the reward it receives from the external environment. This research field can have critical applications in numerous and different areas, not only related to engineering. This period has allowed me to grow professionally and academically by making myself aware of the satisfactions and difficulties of experimental research. However, it was also a fundamental step in my career because I lived for six months in an international environment full of students from all over the world.

In 2017 I had the opportunity to work as intern in a software company, thanks to which I discovered the organization and dynamics of a company. I collaborated with some fellow interns and the team of the company in updating and testing one of their main products, acquiring new skills through the technique of pair programming. Besides, during my studies, there were opportunities to develop personal and academic projects, often in teams. In most of these projects, I played coordinating roles that allowed me to develop skills such as leadership, team management, conflict management, time management and above all, listening. I believe that the key to success in team projects is listening, understanding the needs and proposals of each component. This fact allows you to put yourself in different points of view, discovering facets of a problem that the individual would not be able to find out for himself.

Living almost all of my university career in the merit residence "Renato Einaudi" in Turin undoubtedly represents a fundamental part of my education. I met a lot of brilliant people from Italy and beyond, thanks to whom I improved my way of interfacing with others by learning to live together, managing relationships with a considerable number of people.

Winning the grant of the call you offer in collaboration with McKinsey & Company would be an excellent development opportunity for my research project and, more generally, for the completion of my academic studies and the start of my professional life. Thank you for your time. I am looking forward to hearing positive news from you.

Yours faithfully,

**Piero Macaluso**

*Allegati: Curriculum Vitae, Essay progetto*