Intervento realizzato da

In consideration of the determination of the Regione Piemonte – Direzione Istruzione, formazione e lavoro No. 218 of 2022, May 3 which listed the higher institutions authorized to activate PhD positions in the apprenticeship format for the years 2022-2024 in the framework of a specific regional call for proposals (Apprendistato di Alta Formazione e Ricerca - Avviso Pubblico 2022-2024 per l'individuazione e la gestione dell'offerta formativa pubblica approvato con Determinazione 114 del 3/3/2022 e s.m.i.)

MECHANICAL ENGINEERING

Development of a processing and optimization frame

Company	ADDFOR SPA [P.iva/CF:09903210012]
Supervisor	MISUL DANIELA ANNA - daniela.misul@polito.it
Contact	Marco Fainello
Context of the research activity	The project is aimed at developing a framework, potentially based on the implementation of a neural network, capable of integrating and processing heterogeneous data coming from simulations conducted using different types of software. The goal is to leverage input and output data from these tools to create a simplified model of the system, enabling the simultaneous management of simulation and optimization, reducing simulation time, and increasing interoperability between software applications of different kinds. This objective will be achieved by exploiting artificial intelligence techniques, including machine learning. A possible application could be the creation of simplified models of aerodynamics or vehicle dynamics in order to conduct real-time analysis on a driving simulator. The Company Addfor S.P.A. has planned for the winner of this position a collaboration within a contract of high apprenticeship according to the Italian Legislative Decree 81/2015, art. 45.
Objectives	The ultimate goal of this PhD research project is to develop solutions aimed at reducing simulation time, increasing interoperability between software tools used for modelling different systems, and enabling technicians to efficiently interact with various models. This objective will be achieved by leveraging artificial intelligence techniques, including machine learning, through the implementation of machine learning algorithms and deep learning solutions, while drawing on the technical expertise acquired during previous engineering studies.

Skills and competencies for the development of the activity	The candidate shall be less than 30 years old at the moment of the hiring from the company. The selected candidate should be capable of evaluating state-of-the-art technologies and methodologies and translating them into computational code. Therefore, the candidate must possess cross-disciplinary skills related to the automotive sector and production systems, with the ability to integrate Machine Learning and Deep Learning solutions into the development of the project.