ARTIFICIAL INTELLIGENCE

MUR DM 118 - AI-based multi-agent systems for high dimensional control problems for energy management in buildings

Funded By	MINISTERO DELL'UNIVERSITA' E DELLA RICERCA [P.iva/CF:97429780584] Politecnico di TORINO [P.iva/CF:00518460019]
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Context of the research activity	The optimization problem of energy management with innovative approaches by means of advanced control strategies based on artificial intelligence. Progetto finanziato nell'ambito del PNRR – DM 118/2023 - CUP: E14D23001820006
Objectives	The transition towards grid-interactive efficient buildings is pushing to shift energy management at a scale of building clusters using centralized or distributed architectures to enhance flexibility and optimize energy cost. As a consequence, the research aims to address the optimization problem of energy management with innovative approaches by means of advanced control strategies based on artificial intelligence such as NMPC (Nonlinear Model Predictive control) coupled with reinforcement learning (RL).
Skills and competencies for the development of the activity	The candidate should have the following skills: Optimization theory, variational methods, statistical models, stochastic processes, machine learning techniques, and control theory. Knowledge of programming languages such as Python and Matlab.