ARTIFICIAL INTELLIGENCE

MUR DM 118 - Graph-theoretic models in machine learning and computer vision

Funded By	UNIVERSITA' DI VENEZIA - CA' FOSCARI [P.iva/CF:00816350276] MINISTERO DELL'UNIVERSITA' E DELLA RICERCA [P.iva/CF:97429780584]
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Context of the research activity	Graphs and graph-based representations in computer vision and machine learning. Progetto finanziato nell'ambito del PNRR – DM 118/2023 - CUP E14D23001830006
Objectives	Graphs and graph-based representations have long been important tools in computer vision and machine learning, especially because of their representational power and flexibility. There is now a renewed interest in explicitly formulating computer vision problems as graph problems. This is particularly advantageous because it allows vision problems to be cast in a pure, abstract setting with solid theoretical underpinnings. It also permits access to the full arsenal of graph algorithms developed in computer science and operations research. The objective of this research is to advance the state of the art in this area by combining the most recent developments in machine learning (e.g., graph neural networks) with classical results from graph theory. The resulting models will be applied to a number of problems in computer vision.
Skills and competencies for the development of the activity	Familiarity with basic machine learning and computer vision algorithms.