

Title of the doctoral program

Computer and Control Engineering

Title of the research activity

Multi-Actor Decision making for CITY planning - MAD4CITY

Short description of the research activity

Managing the process of decision making in Multi-Actor Complex Systems (MACS) is one of the most interesting challenges for researchers and practitioners. Among the different complex systems, MAD4CITY considers one of the most challenging, the urban area and the need for planning freight and people transportation.

MAD4CITY has three main objectives:

1. Control the decisions of the different actors in a complex system towards more desirable and stable consequences. Showing that such a control system exists is important both from a theoretical and a practical point of view. In fact, it is unclear if, even having different complex systems with some similarities, these similarities are enough to derive a common skeleton for guiding the decision makers, being most of the methods presented in the literature strictly problem-dependent. The answer is also crucial from the application point of view. In fact, providing a methodology to guide the convergence of these complex systems should lead to a standard basic approach to different problems.
2. Apply and specialize the control guidance in order to control, evaluate and predict the results of transportation planning activities in urban areas. In this way, the project will give to the main city stakeholders' guidelines and medium and long-term policies to manage the transport in an urban area, while supporting the economic growth of the area and reducing the environmental impact of the transportation activities at the same time.
3. Control and predict events through direct policy interventions in the urban area, evaluating their impact at the operational level.

Scientific responsible (name, surname, role, email)Guido Perboli, Assistant professor, guido.perboli@polito.it**Number of vacancies for XXXI cycle (3 years program)**

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Specific requirements (experiences, skills)

Web or mobile-based (Android/ios) apps developing. Java programming

Interest in developing skills in in management and project management

Website of the research group (if any)

http://www.dauin.polito.it/research/research_groups/oro_operations_research_and_optimization_group