

UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II

DOTTORATO DI RICERCA / PHD PROGRAM IN
INFORMATION TECHNOLOGY AND ELECTRICAL ENGINEERING

Seminar announcement

Tuesday 9 April 2024, Time: 12:45 - 13:45

Room I5, Floor 1, Building 1 - Via Claudio, 21 - NAPOLI



Prof. Gennaro Notomista

University of **Waterloo**, Waterloo, Canada

Department of Electrical and Computer Engineering

<https://uwaterloo.ca/electrical-computer-engineering/profile/gnotomis>

- Email: gennaro.notomista@uwaterloo.ca

Analytic center selection of optimization-based controllers for robot ecology

Abstract: During their young life, robots, with the invaluable help of humans, have made the planet Earth arguably worse from an ecological perspective. Robot ecology, far from simply concerning itself with the employment of robotic systems in ecological studies, focuses on the development of robots and algorithms to optimize the relationships of autonomous machines with living organisms and their physical environment. To this end, constraint-driven control, owing to its opportunistic nature, demonstrated to be the right paradigm for

decision making of robots deployed over long time horizons in unknown and evolving environments. Yet, the optimization-based nature of such controllers makes their analysis more difficult than their synthesis. In this talk, a novel approach for the analysis and synthesis of optimization-based controllers based on analytic center selection of differential inclusions is presented. Discussed applications will include long-term environmental monitoring and resilient control of multi-robot systems.

Lecturer short bio: *Gennaro Notomista is an Assistant Professor and the Varma Family Professor in Robotics in the Department of Electrical and Computer Engineering at the University of Waterloo (Waterloo, ON, Canada). He graduated in mechanical engineering from the Università degli Studi di Napoli "Federico II" (Napoli, Italy) and in automotive engineering from the Technische Hochschule Ingolstadt (Ingolstadt, Germany). He holds a Ph.D. degree in robotics from the Georgia Institute of Technology (Atlanta, GA, USA). Dr. Notomista is a Fulbright Scholar and was the recipient of the Alumni Small Grant (2020) and the IEEE ARSO Best Paper Award (2022). His main research interests lie at the intersection of design and control of robotic systems for long-duration autonomy with applications to environmental monitoring.*

For information: Prof. Bruno Siciliano (DIETI, UniNA) - bruno.siciliano@unina.it (organizer)