DIPARTIMENTO DI
INFORMATICA, SISTEMISTICA E
COMUNICAZIONE
Viale Sarca, 336
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AVVISO DI SEMINARIO

Lunedì 12 Maggio 2025
alle ore 13.30 nella Sala Seminari del DISCO
il Prof. Davide Brugali
Universita' degli Studi di Bergamo

terrà un seminario dal titolo

Self-Adaptive and Self-Reconfigurable Autonomous Robots

Abstract: Autonomous robots operating in everyday environments, such as hospitals, private houses, and public roads, are context-aware self-adaptive systems, i.e. they exploit knowledge about their resources and the environment to trigger runtime adaptation, so that they exhibit a behavior adequate to the current context. For these systems, context-aware self-adaptation requires to design the robot control application as a dynamically reconfigurable software architecture and to specify the adaptation logic for reconfiguring its variable aspects (e.g. the modules that implement various obstacle detection algorithms or control different distance sensors) according to specific criteria (e.g. , enhancing robustness against variable illumination conditions). The talk will introduce the basic functionality of autonomous mobile robots, discuss the concept of software variability, and illustrate a conceptual model for self-adaptive and self-reconfigurable robot control architectures.

Bio: Prof. Davide Brugali graduated in Electronic Engineering at Politecnico di Milano in 1994; he received the PhD in Computer Science from Politecnico di Torino in 1998. From 2001 until 2011 he has been Assistant Professor at University of Bergamo. Since 2011 he is Associate Professor at the Department of Engineering of the University of Bergamo. He has been visiting researcher at the CMU Robotics Institute for one year between 1997 and 1998 and visiting professor at NASA Jet Propulsion Laboratory in year 2006. He has served as Co-Chair of the IEEE RAS Technical Committee on "Software Engineering for Robotics and Automation" from 2000 to 2019, as Associate Editor of the IEEE Robotics and Automation Magazine from 2009 to 2011 and Editor-in-Chief of the Journal of Software Engineering for Robotics from 2009 to 2018. He is main author of the book "Software Development - Case Studies in Java" published by Addison-Wesley in 2005. He is the coordinator of the Robotics Laboratory of the University of Bergamo. His research activity mainly focuses on software engineering methodologies and techniques for the development of robot control systems and applications.
Primary Areas of competence: Software Engineering in Robotics, Mobile Robots, Robot Control Architectures. Secondary Areas of competence: Embedded systems, Factory Automation, Industrial Robots.

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La partecipazione è aperta a tutti gli interessati!