

Colloquium: Small UAVs for Emergency Response

Abstract

The talk addresses the potential for application of small UAVs, such as quadrotors, for emergency response. We initially analyze a number of emergency scenarios and motivate the need for situation awareness, in order to plan and monitor the actions of the emergency response team. We argue that small UAVs can be effectively deployed to improve the situation awareness, and, consequently, the performance of the operation.

Besides the flying and control capabilities of the platform, a key issue for the development of effective solutions in the targeted domain, is the ability to easily develop software that acquires data on the scenario in such a way as to maximize the amount of knowledge for the operator.

Specifically, we describe the main features of the OpenRDK framework for developing robotic applications, implemented at Sapienza Univ. Di Roma, and currently distributed to a few other research groups. Moreover, we present some examples developed through OpenRDK on our experimental quadrotor system. We conclude by addressing future research, and, in particular, forms of cooperation in robotic teams including UAVs.

Biography

Daniele Nardi is Full Professor at Facoltà Ingegneria, Sapienza Univ. Roma, Dipartimento Informatica e Sistemistica, since 2000. His current research interests are in Artificial Intelligence, Cognitive Robotics, Multi-Agent/Multi-Robot Systems and Search and Rescue Robotics. He is author of more than 100 scientific publications, recipient of „IJCAI-91 Publisher's Prize“ and of Prize „Intelligenza Artificiale 1993“ and ECCAI Fellow. He is currently Vice President of RoboCup Federation, Coordinator of the Curricula in Computer Engineering at Sapienza Univ. Roma and Director of the research laboratory „Cognitive Robot Teams“.

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