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Daniele de Martini, Oxford Robotics Institute

March 31ˢᵗ, 2026 - at 4:00 pm CET

Vandal Lab, Covivio, Sala Grande
Corso Ferrucci 112
Turin, Italy

Link: https://tinyurl.com/3h7c6pfp

Robotics Inversion: Leveraging Cloud and IoT for Control of Heterogeneous Robot Fleets at Ultra-Low Cost

While most research in mobile robotics is robot-centric, recent advances in low-latency and high-bandwidth telecommunication and IoT could revolutionise this traditional robotics model. This talk will describe the latest work by the Mobile Robotics Group (MRG) at the Oxford Robotics Institute on a new paradigm, called Robotics Inversion (RI), which has enabled the deployment of their first system in a multi-camera constellation across an operational warehouse. This paradigm lets mobile platforms access flexible, virtually unbounded computing and sensing power, offboard, divorcing computing and sensing costs from fleet size. The RI addresses cost, installation, and time barriers to deploying robots in productive commercial operations, eschewing onboard sensing in favour of ubiquitous IoT cameras within a shared, smart Information and Communications Technology (ICT) infrastructure.

Daniele de Martini is an Associate Professor in Mobile Robotics at the Oxford Robotics Institute and Oxford e-Research Centre, where he co-leads the Mobile Robotics Group with Professor Paul Newman. He is also a Tutorial Fellow in Engineering Science at Keble College. Daniele's research focuses on creating intelligent, autonomous robots, mainly by applying Artificial Intelligence (AI) techniques. He has worked on navigation and scene understanding, including mapping and localisation, detection, and segmentation, using different sensing technologies – from vision to laser to radar – and in diverse environments and conditions – from central Oxford to snowy Highlands. Another prominent research interest is in the interplay between robotics and smart infrastructures, enabling the sharing and elastic allocation of sensing and computing resources for safe operation.