Seminars in Artificial Intelligence and Robotics - Section 2

Prof. Mario Gianni

DEPARTMENT OF COMPUTER, CONTROL, AND
MANAGEMENT ENGINEERING ANTONIO RUBERTI
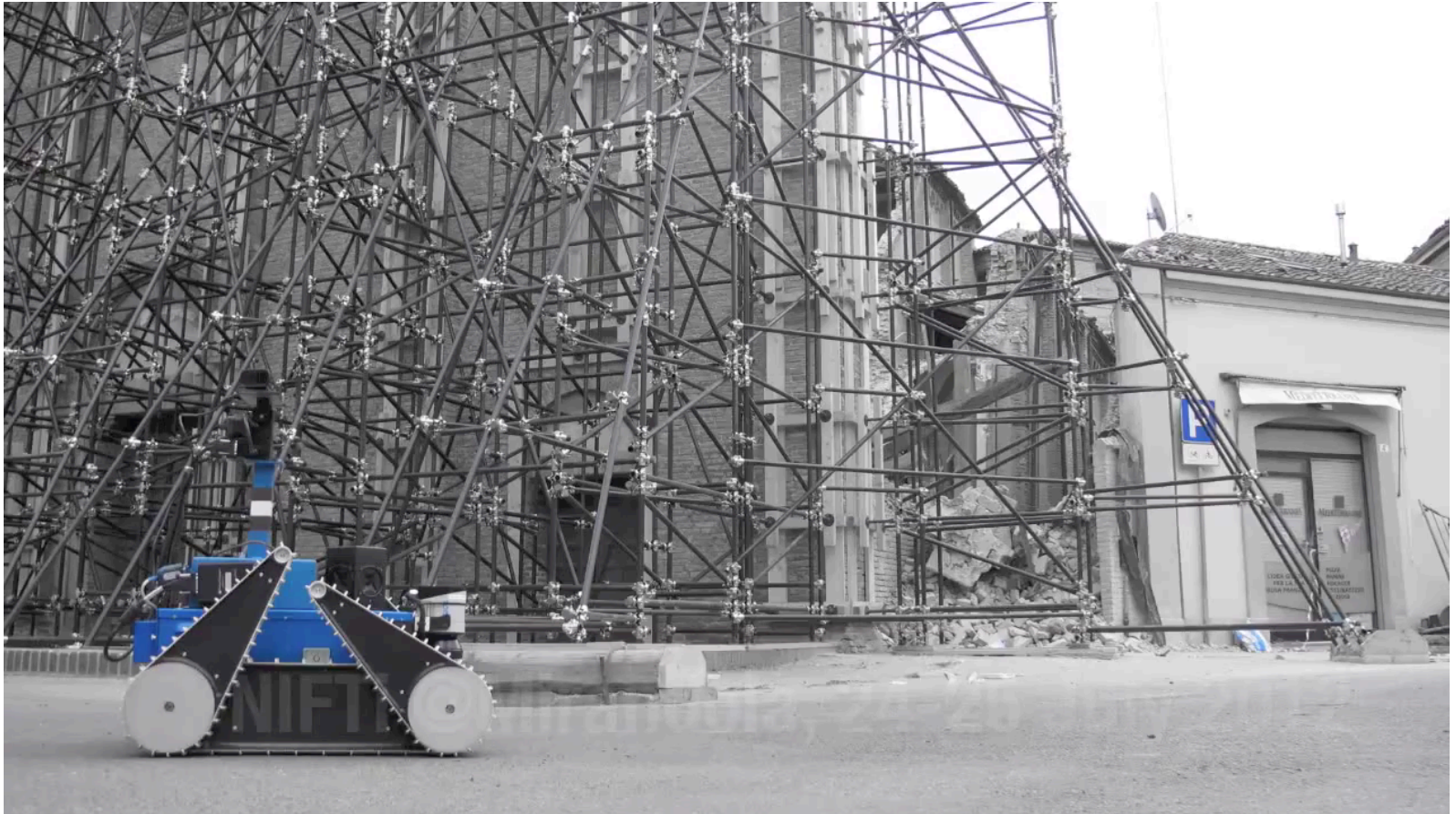
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AI Models and Methods in Safety-Critical Robotic Applications
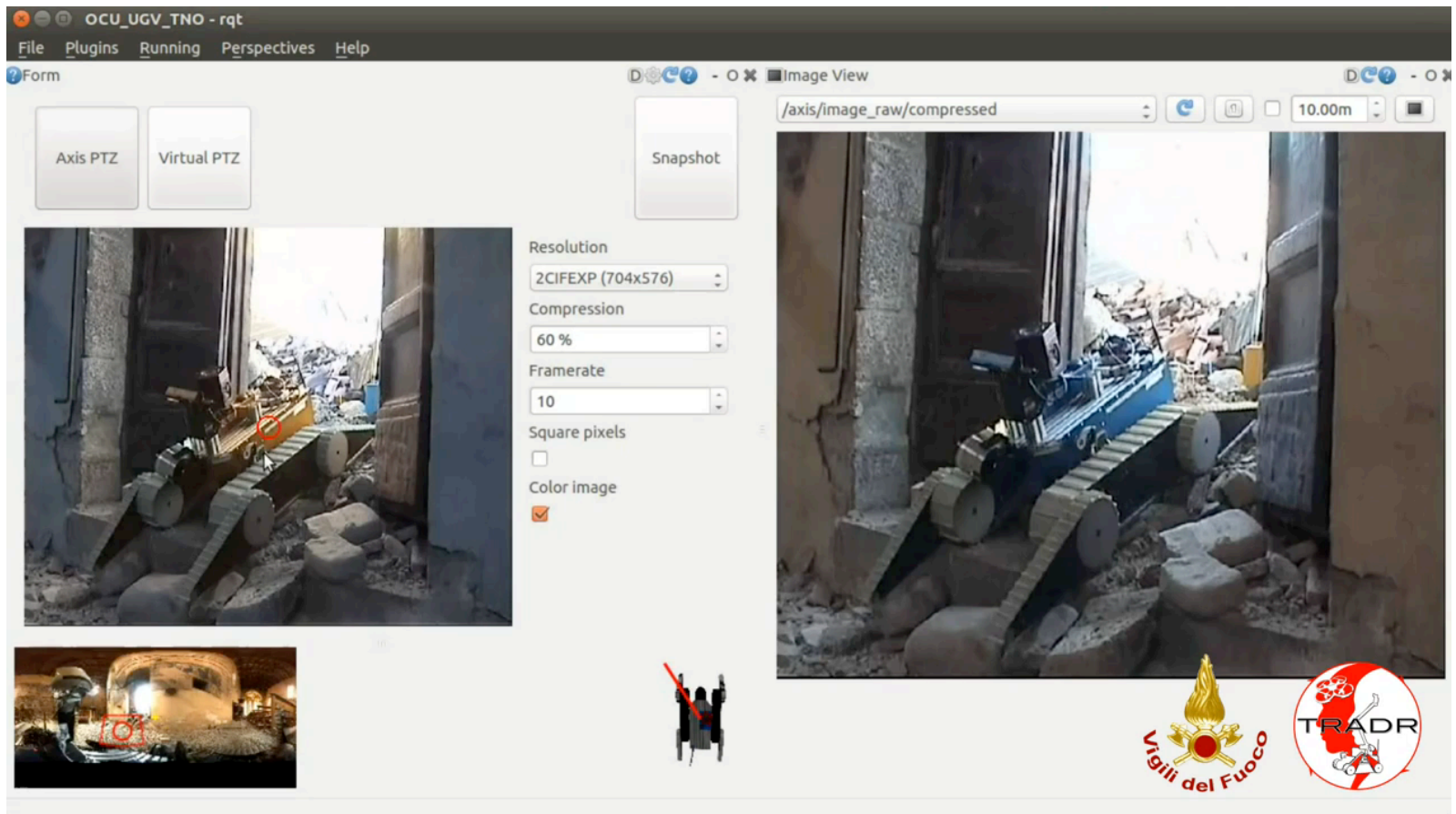
Introduction and Motivations
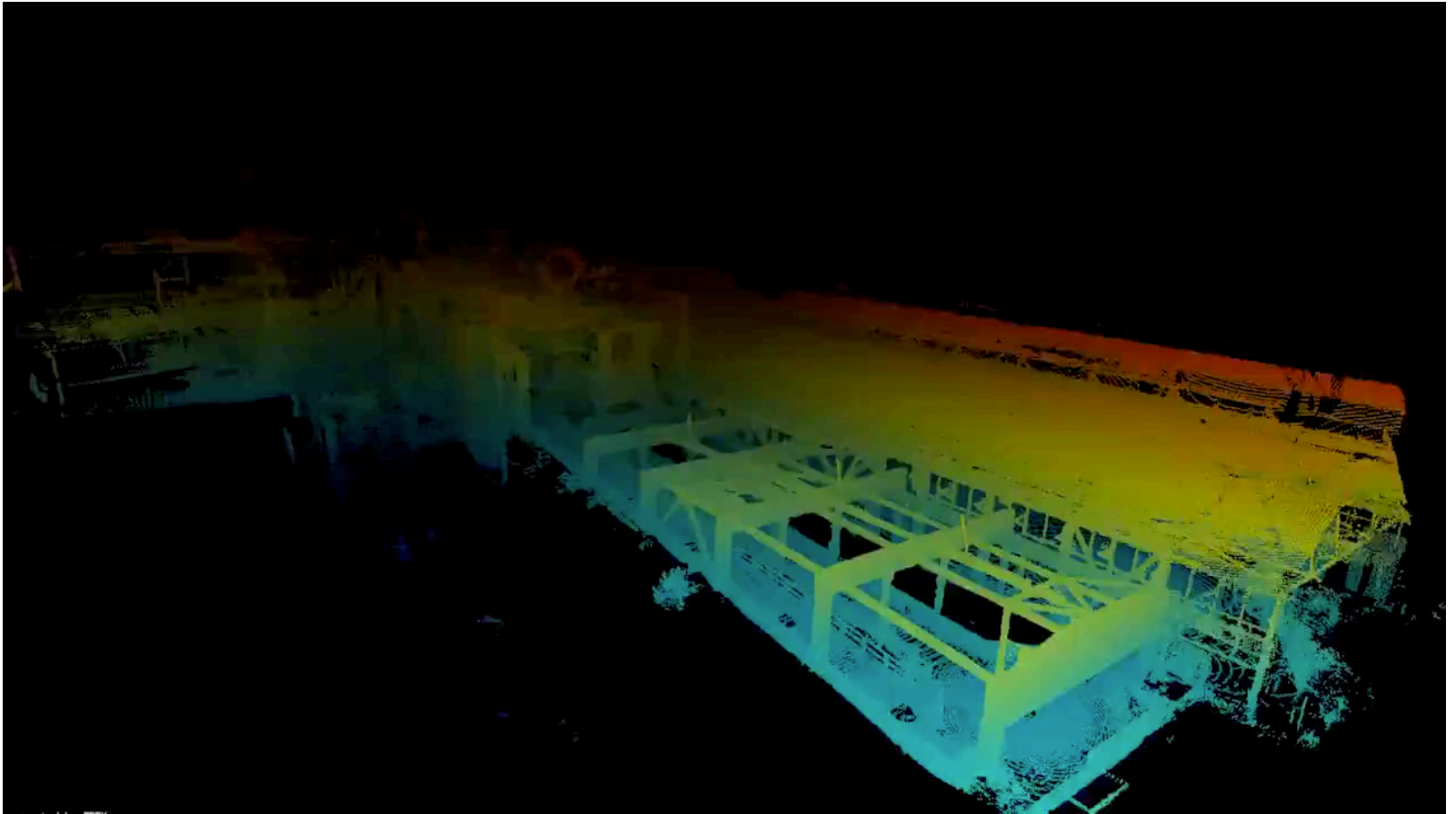
In-field Experience

Mirandola, Italy, July 2012

In-field Experience
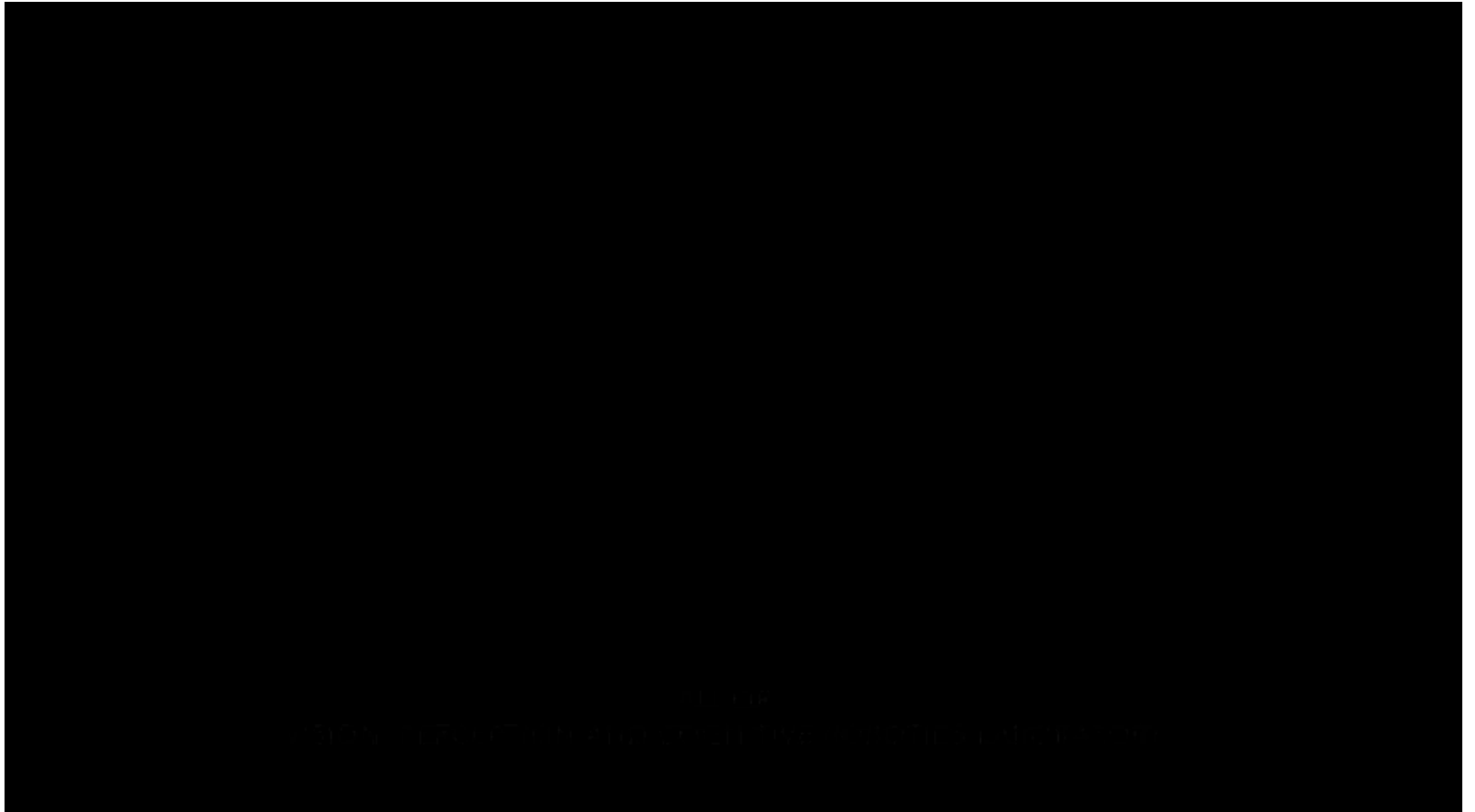
Amatrice, Italy, September 2016
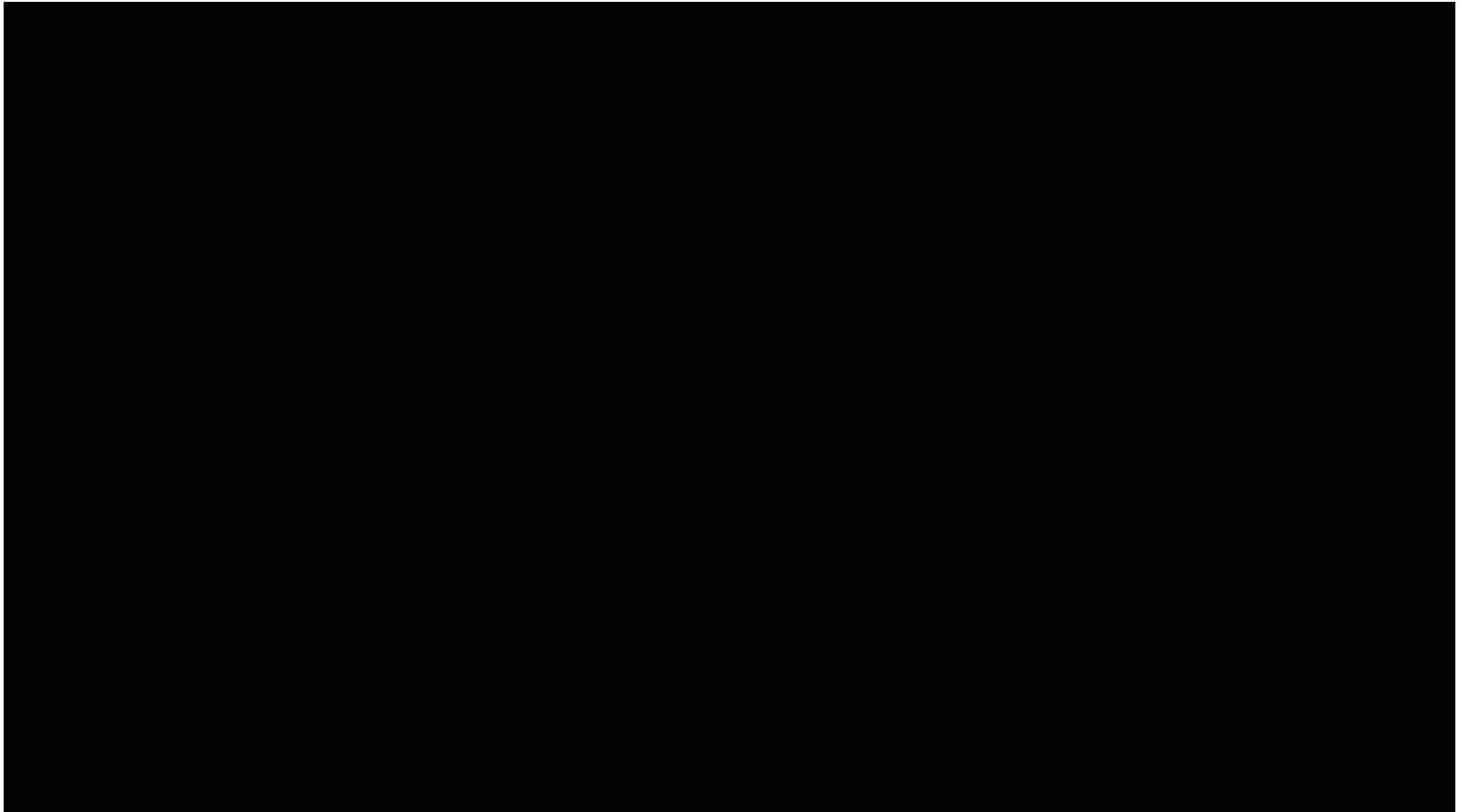
Toward Real-Time Autonomous 3D Navigation
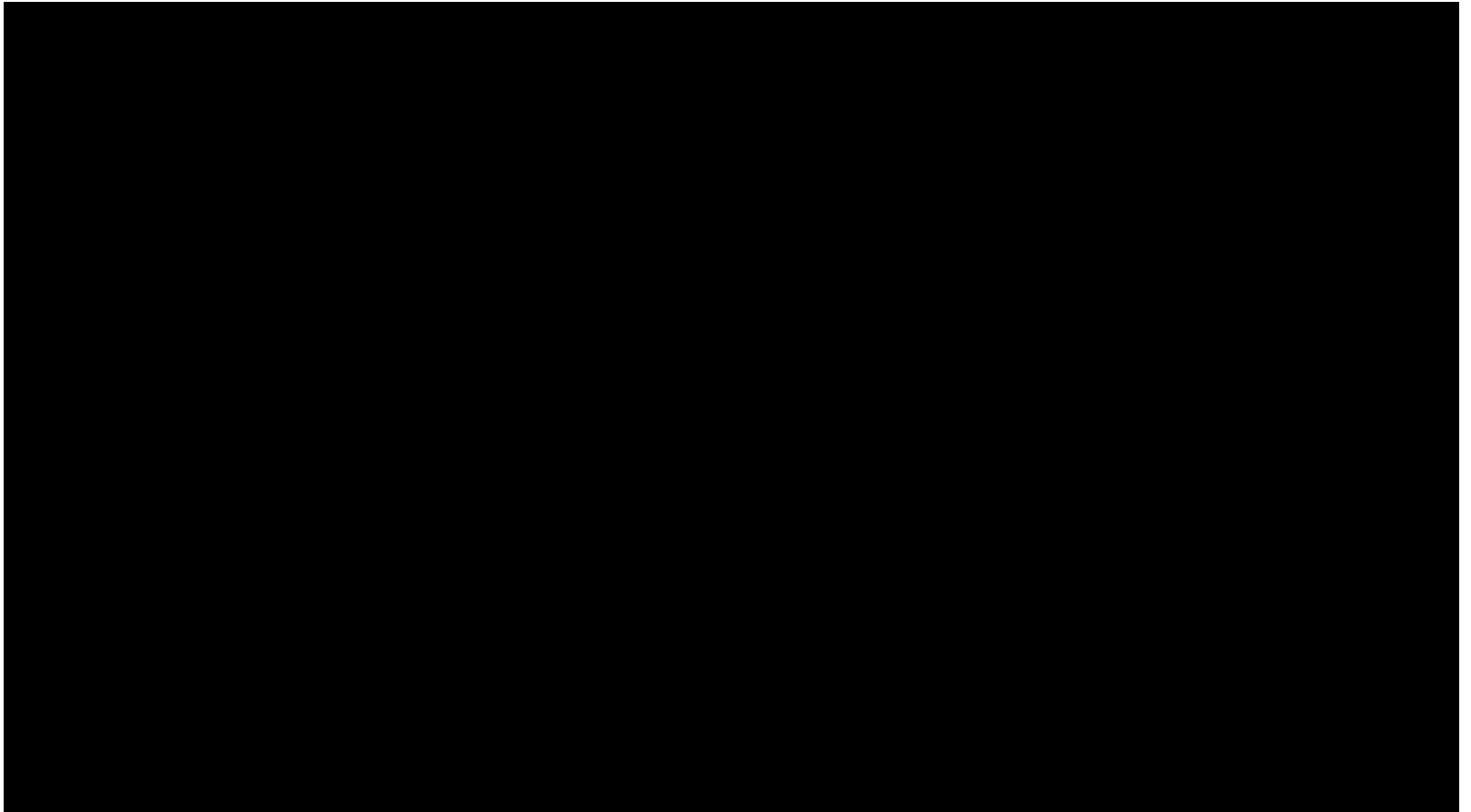
Models

Toward Real-Time Autonomous 3D Navigation

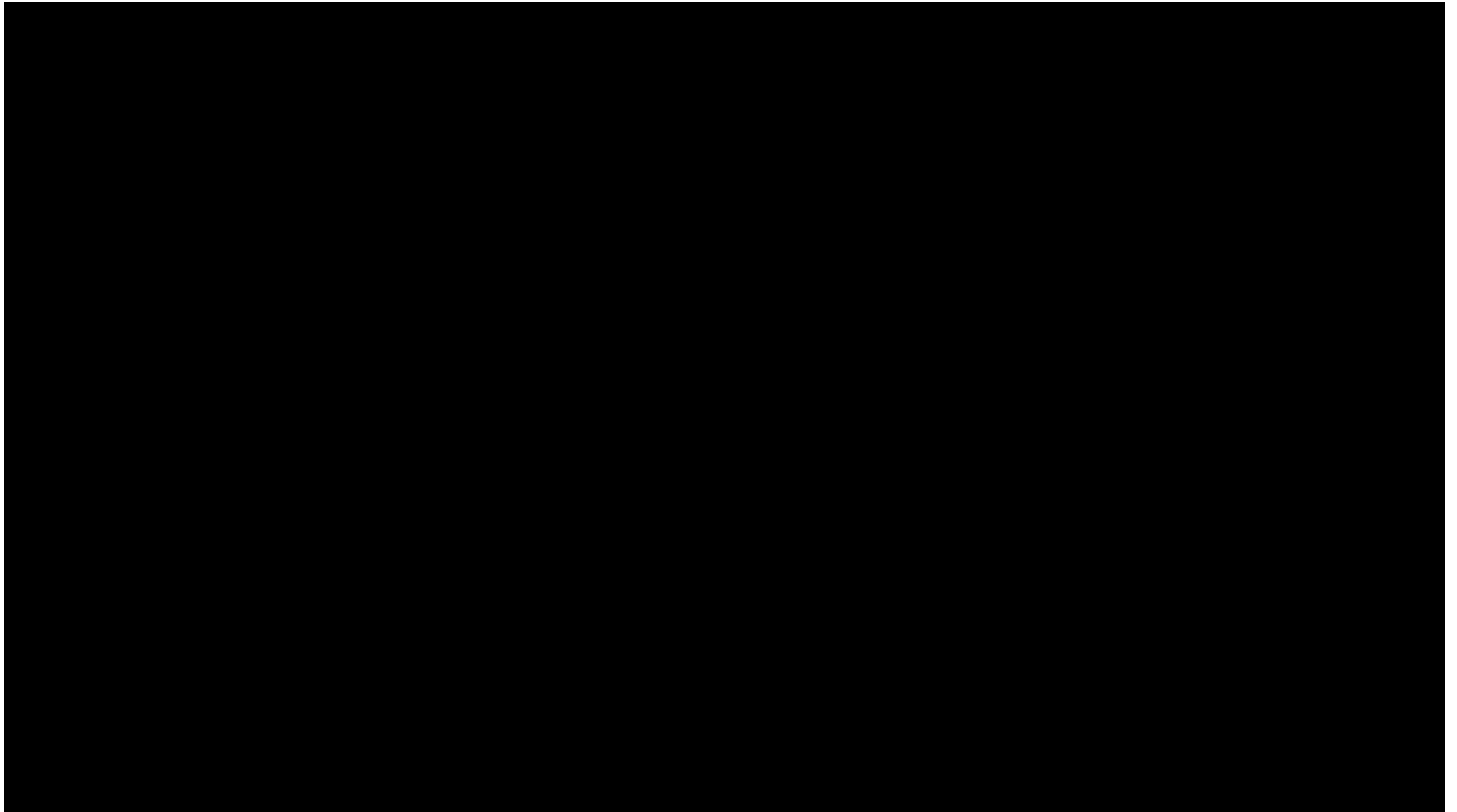**Models**

Toward Real-Time Autonomous 3D Navigation

Models

Safe Locomotion
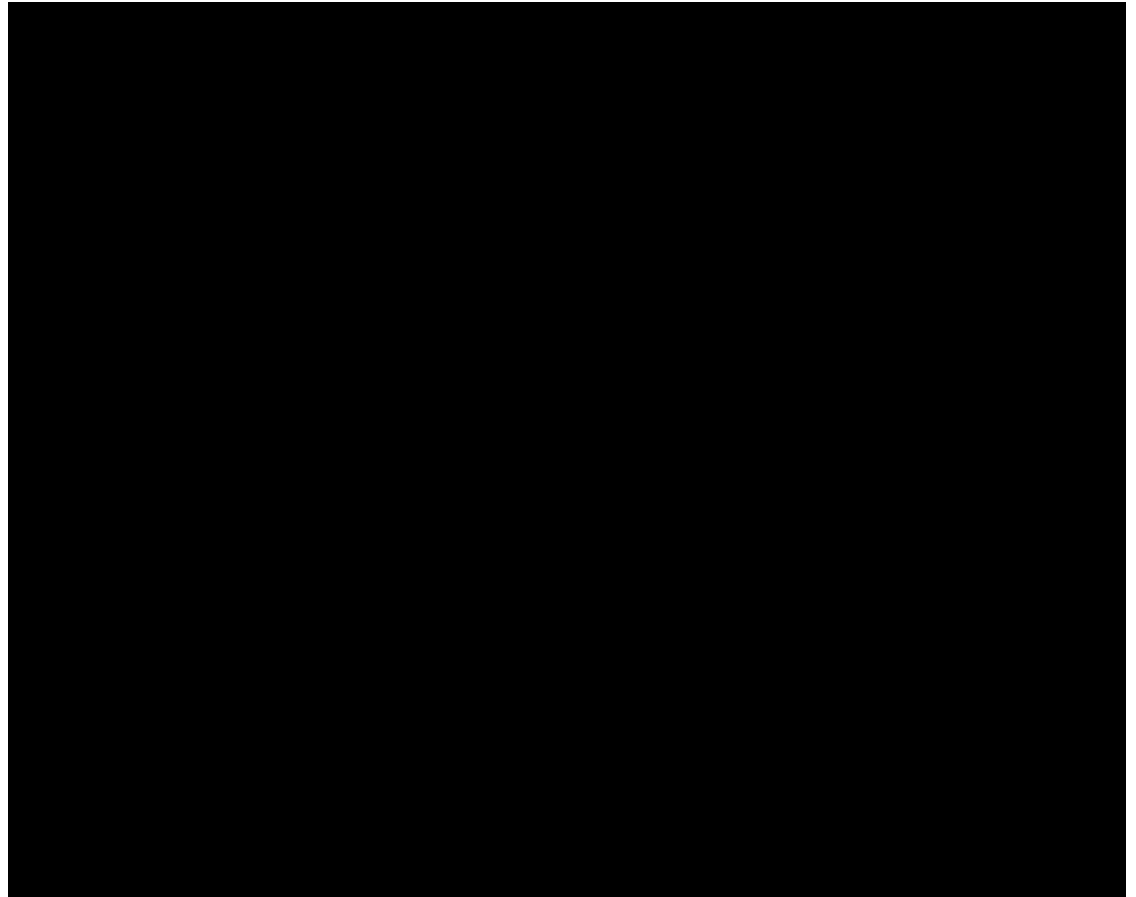
Soil interaction

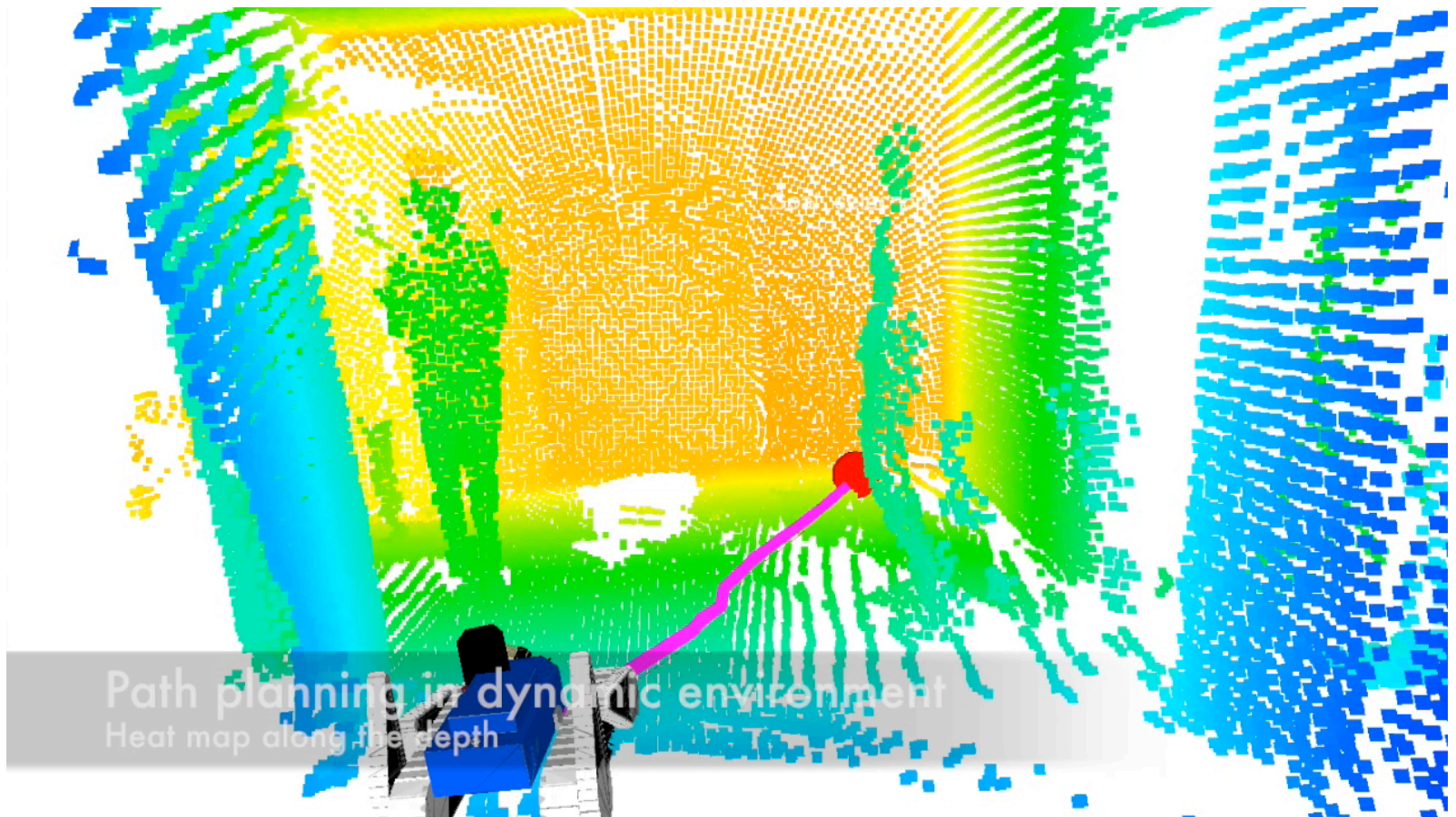# Models of interaction

Contact Estimation

Dynamic Obstacle Detection
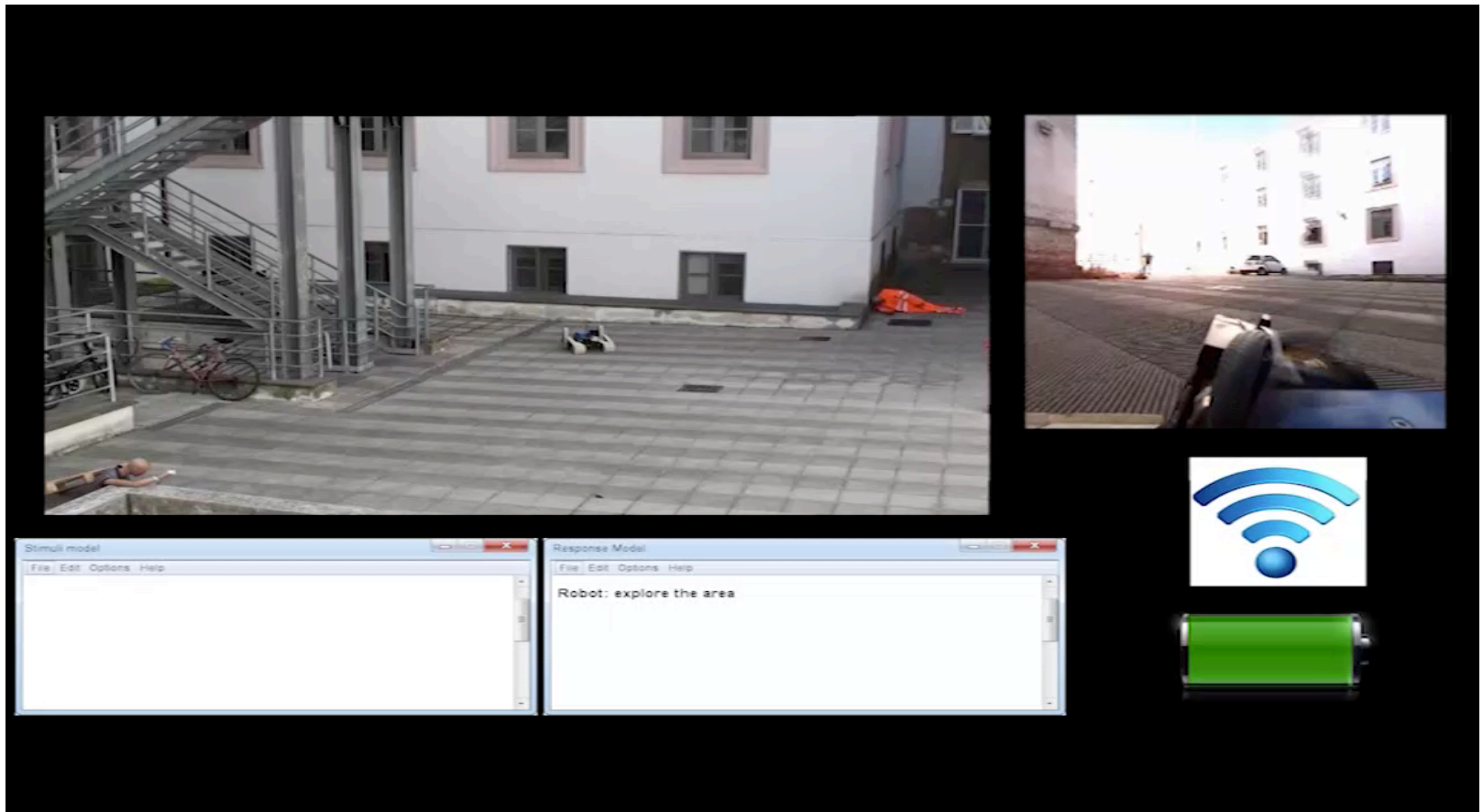
Dynamic environments

Dynamic Obstacle Detection

Dynamic environments

Proactive Behaviors in Robot Control

Shifting and Inhibition

Models and Methods for Multi-Robot Collaboration

Learning Real-Time A* for Coverage

Heterogeneous
Multi-Robot Coverage

ALCOR Laboratory
Sapienza, University of Rome

Models and Methods for Multi-Robot Collaboration

Two levels of coordination for Patrolling

3D Multi-Robot Patrolling

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ETH Zürich
Autonomous Systems Lab

Experiment in DIAG corridor
with dynamic obstacles