

DISTRIBUTED ROBOTICS LABORATORY



We focus on developing the science of network, distributed, and collaborative robotics by asking: how can many machines collaborate to achieve a common goal?



Principal Investigator Prof. Daniela Rus

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MIT CSAIL

Location: The Distributed Robotics Laboratory is located on the third floor of the Ray and Maria Stata Center, Room 32-376.

Website: csail.mit.edu/research/distributed-robotics-laboratory

Laboratory Address: Distributed Robotics Laboratory MIT CSAIL 32 Vassar Street, 32-376 Cambridge, MA 02139

Research Vision

Our goal is to develop the science of autonomy toward a future with robots and AI systems integrated into everyday life. Our research focuses on the development of algorithms and systems that enable self-organization, collaboration, and adaptation when interacting with the physical world.

Areas of Research

- Designing and building machines with new capabilities—distributed systems of robots and sensors
- Analyzing the physical capabilities of these machines
- Applying these capabilities to societal problems

Research Activities

- Robot design, control, locomotion, and manipulation
- High-level planning and control for groups of robots
- Robot systems that include teams of:
 - Ground robots
 - Aerial robots
 - Underwater robots
 - Modular robots capable of autonomously changing shape to match task requirements



"We have a broad reach and aim to increase efficiency and optimize operations. We aim to create more intelligent tools for people working in various industries, because we see machines as being able to take care of routine tasks so that people can focus on high-level, more creative tasks. And we aim for this both from the point of view of creating physical tools through robots and computational tools through various types of cognitive agents."

- Prof. Daniela Rus, MIT CSAIL

Alliances

Industry Applications

- Manufacturing
- Agriculture
- Entertainment
- Homeland Security
- Transportation
- Environmental monitoring
- Health care

In the news

- Self-folding origami robots story named one of the top ten <u>IEEE Spectrum</u> robotics posts of the last decade
- Soft robotic arms can better understand the world around them with new "sensorized" skin, reported <u>Tech Crunch</u>
- Autonomous cars that predict driving behavior could reduce accidents on the road, according to <u>Forbes</u>

Current Researchers, Postdocs, and Students in the Lab

Prof. Daniela Rus

Dr. Yutong Ban Dr James Bern Dr. Joseph DelPreto Dr. Tao Du Dr. Xiao Li Dr. Chao Liu Dr. Paul Tylkin Dr. Lianhao Yin Dr. Wei Xiao Alexander Amini Noam Buchman Levi Cai Makram Chahine Lillian Chin Teddy Ort John Romanishin Tim Seyde Tsun-Hsuan Wang Peter Werner Annan Zhang