



Professor Robert Katzschmann

«I want to give robots a freedom of movement and adaptive ability similar to that of life forms in natural systems.»

Soft Robotics Lab

Institute of Robotics and Intelligent Systems

Soft robotics is a young and rapidly growing interdisciplinary research field. To develop soft and biohybrid robots made from compliant materials similar to those found in living organisms, our lab joins forces with material science, tissue engineering, computer science, and medicine. We design and fabricate fluidic and electric drive concepts and develop modeling, controls, and machine learning algorithms to enable soft, flexible, and adaptive interactions of robots with objects and living beings.

Tools and methods

- Elastomers, cells, pumps, molds, sensors, computational units
- Modeling using finite element and minimal-parameter methods
- Control using model-based and model-free techniques
- Deep learning techniques incl. reinforcement learning

Teaching

I use robots in my lectures to demonstrate concepts effectively.

Further details online:
www.srl.ethz.ch

