University of Zurich[UZH]

Institute for Regenerative Medicine • IREM

InReMed

Innovations in Regenerative Medicine

Monday, October 30th, 13:00 – 14:00

Wagistrasse 12, 9th floor, Founders Lab

Robert Katzschmann

Assistant Professor of Robotics, ETH Zürich

Engineering living machines: Pioneering Bioprinting Techniques in Biohybrid Robotics for Future of Medicine

Biohybrid robotics bridges the gap between traditional robotics and biology by integrating synthetic materials with living systems, notably muscle cells and tissues. Our research group, the Soft Robotics Lab, designs, fabricates, and studies biohybrid robots. We build biohybrid robots with various tissue engineering approaches, from hydrogel casting and micro-molding to complex light- and extrusion-based bioprinting. This talk will explore the development and applications of engineered muscle tissues in robotics and medicine. First, we will showcase approaches to fabricate muscle tissue. Specifically, we will share our work in light-based bioprinting with cardiomyocytes and extrusion printing skeletal myoblasts. Next, we will explore scalable (parallel, and large-scale) fabrication in tissue engineering. Finally, we will discuss our approach to engineering implantable muscle tissues and the potential applications of soft robotics and tissue engineering in medicine.

Chair: Dr. Melanie Generali