University of Basel
Department of Biomedical Engineering

Selected research topics in Biomedical Engineering:
Robot- & Computer-Assisted Surgery

Location: DBE, Hegenheimermattweg 167B, Lecture Hall 02.097
Date & Time: Wednesday 13.12.2023 13:15 – 15:00

Computational Models and Machine Learning Suites to Enhance Therapy Planning and Surgical Outcomes

Farhad R. Nezami

Harvard Medical School

Abstract
In contemporary medical practices, computational simulations and machine learning play indispensable roles in surgery planning and predicting outcomes. The integration of these technologies enables precise modeling of complex anatomical structures and facilitates informed decision-making for healthcare professionals. Recognizing the significance of comprehending the mechanical environment is paramount, particularly in implant design and surgical procedures, as it ensures that interventions align seamlessly with the intricate interplay between physiology and anatomy.

Biosketch
Dr. Farhad R. Nezami currently serves as the Lead Investigator at the Division of Cardiac Surgery at Brigham and Women's Hospital, holds the position of Assistant Professor at Harvard Medical School, and is an affiliate Faculty member at the Institute for Medical Engineering and Science at MIT. With a PhD in Mechanical Engineering from ETH Zurich, Dr. Nezami's diverse research portfolio spans human pathophysiology, translating preclinical experiments to clinical practices, optimizing medical device design, and pioneering engineering platforms that seamlessly bridge the gap from laboratory bench and computational toolkit to the patient's bedside. His work involves developing predictive and prognostic tools by integrating clinical data, computational tools, and machine-learning algorithms.