



University  
of Basel

Department of  
Biomedical Engineering



Seminar Series:

## Latest Breakthroughs in Biomedical Engineering Research

Location: DBE Science Lounge, Hegenheimermattweg 167C, 4123 Allschwil

Date & Time: Thursday 20.03.2025 | 16:30 – 17:30

Host: Prof. Alexander Navarini

# XAI for Medical Imaging: Insights from the Past, Breakthroughs of Today, and the Road Ahead

**Prof. Mauricio Reyes**

*Medical Image Analysis, ARTORG Center, University Bern*

## Abstract

Interpretability and Explainable AI (XAI) is transforming medical imaging by enhancing transparency, trust, and clinical adoption of AI-driven technologies. This talk will explore the evolution of XAI in medical imaging, from its early foundations to its current state-of-the-art methodologies. We will discuss key challenges, including AI bias, model interpretability, and regulatory considerations, and highlight emerging solutions that push the boundaries of explainability. Beyond post-hoc analysis, XAI is also proving to be a powerful tool in guiding model development, helping to refine training strategies, optimize data selection, and mitigate bias during learning. Looking ahead, we will examine the future of XAI, particularly in the era of foundation models, where new strategies are needed to ensure interpretability and trustworthiness.

## Biosketch

Prof. Mauricio Reyes earned his Electrical Engineering degree from the University of Santiago, Chile, and a Ph.D. in Computer Science (Medical Image Analysis) from INRIA, France (2006). He is an Associate Professor at the University of Bern's Medical Faculty and leads the Medical Image Analysis group at the ARTORG Center.

His research focuses on machine learning and biomedical engineering for medical image computing, emphasizing clinical integration. In 2008, he co-founded Crisalix, a Swiss company specializing in AI-driven breast surgery simulations. With over €10M in research funding, 350+ publications, and 20,000+ citations, he is a leader in explainable AI for medical imaging.