



## SOFT ROBOTICS FOR EARLY DETECTION AND TREATMENT OF CANCER



**November, 22nd 2023 | 11.00 – 13.30**

Dipartimento di Ingegneria Industriale | Santa Marta

Aula 175

The talk will focus on *Robotic Flexible Endoscopy* and the level of computer assistance required to minimize the mental burden on the operator. Flexible endoscopy enables clinicians to reach deep inside the human body to diagnose and treat mortal diseases, such as cancer. Unfortunately, conventional flexible endoscopes are difficult to operate, often traumatic for the patient, extremely expensive, and prone to the risk of viral and bacterial cross-contamination. Robotic flexible endoscopes – a sub-class of medical continuum robots – have the potential to revolutionize the field by offering an easy-to-use, safe, affordable and low-risk alternative for procedures such as gastrointestinal endoscopy. During the talk, we will discuss robotic flexible endoscopy platforms under development at the [STORM Lab](#) to transform medical robotics. We will also explore different levels of computer assistance designed to improve the user experience and facilitate adoption by healthcare operators.

### Presenta | Prof. Pietro Valdastri



Pietro Valdastri is Full Professor and Chair in Robotics and Autonomous Systems at the University of Leeds. He directs the [Science and Technologies Of Robotics in Medicine \(STORM\) Lab](#), focusing on intelligent robots to fight cancer, the Institute of Robotics, Autonomous System and Sensing (IRASS), and the [Robotics at Leeds network](#). He received his Laurea degree in Electronic Engineering from the University of Pisa in 2001 and his PhD in Biomedical Engineering from Scuola Superiore Sant'Anna in 2006. After the PhD, he became Assistant Professor in Biomedical Engineering at the BioRobotics Institute of Scuola Superiore Sant'Anna. In 2011, Prof Valdastri moved to Vanderbilt University as an Assistant Professor in Mechanical Engineering until 2016, when he relocated to Leeds. He has published more than 150 peer reviewed journal papers in the field of medical robotics and has been principal investigator on grants in excess of \$24M supported by NSF, NIH, ERC, EU-H2020, Cancer Research UK, The Royal Society, EPSRC, Innovate UK and industry, including the NSF CAREER Award with the proposal “Lifesaving Capsule Robots” in 2015, the ERC Consolidator Grant Award with the proposal “NoLiMiTs – Novel Lifesaving Magnetic Tentacles” in 2019, and the KUKA Innovation Award for his robotic colonoscopy platform in 2019. Prof. Valdastri is a Royal Society Wolfson Research Fellow, a Fellow of the Institute of Electrical and Electronics Engineers (IEEE), the Editor for Medical and Rehabilitation Robotics of the IEEE Robotics and Automation Letters, and a member of the steering committee of the International Society for Medical Innovation and Technology (iSMIT).