# MODALITY MATCHING AND SOMATOTOPIC MATCHING APPROACHES FOR RESTORING HAPTIC PERCEPTION IN UPPER LIMB PROSTHESIS USERS

*Lecture by Matteo Bianchi - Università di Pisa*

## BIOSKETCH

**Matteo Bianchi** is currently an **Associate Professor of Robotics and Control Theory** at the **Università di Pisa**, and a **Clinical Research Affiliate at Mayo Clinic** (Rochester, US). His research interests include haptic interface and sensor design, with applications to advanced human-machine interaction (including prosthetics); human and robotic hands. He is the author of more than 100 peer-reviewed contributions, and he is the recipient of multiple awards, including the Best Paper Award at the 2016 Haptics Symposium. He actually serves as a co-Chair of the **RAS Technical Committee on Robot Hands, Grasping and Manipulation**.

## ABSTRACT

The **restoration of the haptic perception** in modern active prostheses represents an open research challenge, and several approaches focus on the development of non-invasive techniques that exploit sensory substitution through wearable haptic devices. In this seminar, prof. Matteo Bianchi will discuss the characteristics that an ''ideal'' sensory substitution loop should have, i.e. modality matching and somatotopic matching, along with possible strategies to implement them with **non-invasive wearable tactile systems**, which can deliver proprioceptive and exteroceptive information to the user of a soft, robotic, underactuated prosthetic hand. To this aim, the **neuroscientific aspects** that characterize human mechanoreceptors and the role of touch in motion perception will be also discussed.

**BIOROBOTICS PHD**
*Seminar Cycle on Prostheses and Artificial Organs*

**Date**
15/09/2021
**Hours**
18.00
**Place**
Streaming on Zoom and in presence in Aula 1 at the BioRobotics Institute

Scan Qr Code to join meeting