

**DI TOPPO
WASSERMANN**
SUPERIORE
UNIVERSITARIA

seminario

**Mechanism and robot
design for medical
and service robotics**

**PROF. LARIBI
MED AMINE**

University of Poitiers,
Francia

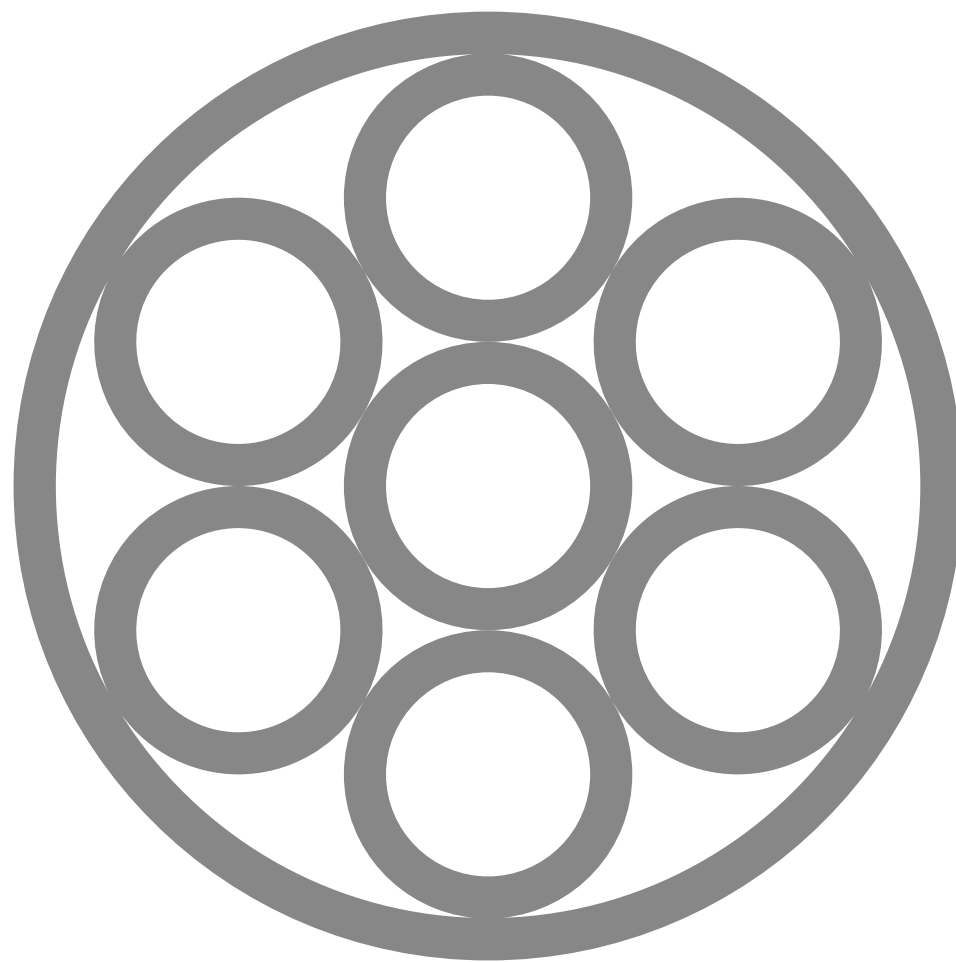


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EDIFICIO DEI RIZZI,
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MERCOLEDÌ 04 MARZO
ORE 9.00

Optimal robot design for medical applications focuses on tailoring robot architectures and parameters to clinical tasks through kinematic optimization, workspace synthesis, and performance-based design methods. This talk emphasizes systematic design processes that start from medical requirements (trajectory, access constraints, safety, ergonomics) and map them to suitable mechanisms such as parallel, cable-driven, or reconfigurable robots. Optimization criteria typically include task workspace, dexterity and manipulability, singularities avoidance, and load distribution, ensuring accurate and safe tool guidance. By integrating mechanism theory, kinematic modeling, and multi-criteria optimization, the proposed methodology provides a coherent framework for designing medical robots whose structure, dimensions, and actuation are explicitly tuned to the constraints of real clinical procedures, improving both surgeon usability and patient outcomes.