



Séminaire ISIR
Jeudi 28 novembre 2019 à
9H10

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Campus Jussieu, 4 place Jussieu, Paris
Salle 107, tour 44, couloir 44-54

Inflatable, stiffness controllable robots: Applications in Human-Robot Interaction

Abstract : I will report on the recent advancements of my team in the area of soft robots, in particular, focusing on inflatable, fabric-based structures. The created robotic structures are capable of naturally adapting to their environment and also adjusting their stiffness over a wide range. The interplay between adaptability to the environment and stiffness adjustability increases the range of the robot's motion capabilities and dexterity: the resulting robots lend themselves for applications in human-robot interaction, especially where a close physical interaction, with stringent safety requirements, between the human and the robot is occurring, as is the case in rehabilitation. The presentation will show the recently fabricated soft and inflatable robotic structures, including inflatable robot structures that can be attached to worn by the user to rehabilitate their hands.

Short bio : Professor Althoefer is an experienced roboticist leading competitively funded research on soft robotics, intelligent micro-sensing systems and interaction dynamics modelling with applications in minimally invasive surgery, assistive technologies and human-robot interaction at Queen Mary University of London. He acquired in excess of £5.7M as Principal Investigator from national/international funding bodies and successfully completed 22 PhD projects. Professor Althoefer's research team, currently comprising 10 postdoctoral research associates and PhD students, is involved in funded collaborative research with leading London hospitals, European research organisations and international companies creating novel robot-assisted solutions for nuclear waste decommissioning, cardiac catheterisation, foetal ultrasound monitoring, tissue diagnosis using miniaturised sensors and ergonomically-optimised human-robot interaction in the manufacturing sector. Over the last decade, the team has built a large portfolio of projects in application-oriented research for the healthcare sector and a wide range of industries with funding from organisations such as EPSRC, European Commission (including coordination of two EU-projects), Wellcome Trust and UK-based charities, exceeding £30M and producing more than 250 peer-reviewed papers.