

"Seminars in Biomedical Engineering"

Programa de Pós-Graduação em Engenharia Biomédica

25/11/2022 - 13h00

Google Meet Link: http://meet.google.com/hmq-bbjb-bob

IN SILICO TOOLS FOR CONGENITAL HEART DISEASES: A BIOENGINEERING, TRANSLATIONAL EXPERIENCE

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<u>Abstract</u>

Congenital heart diseases are structural and functional defects developed during prenatal life and that remain present after birth. Nearly 1% of babies worldwide are born with congenital disease. With modern advances in medicine most of the congenital anomalies can be corrected thanks to the massive progress made in paediatric surgical procedures, interventions and medical technologies. Despite this, life expectancy for children with critical congenital abnormalities is lower than the average population and, in some cases, patients require continued treatment throughout the patient's life. The complexity of these conditions often require personalized and tailored approaches. In this context, in silico medicine can provide support to enrich diagnosis and model personalized treatments for children born with congenital diseases. In his talk, Claudio Capelli will speak about his experience as a bioengineering researcher embedded within a clinical centre of excellence (i.e.

the Great Ormond Street Hospital for Children, London, UK). Claudio will review computational methods and results highlighting both successes and challenges incurred in over a decade of efforts to translate numerical simulation to clinics. His presentation will cover the evolution of numerical tools starting from idealized finite element simulations of devices, to patient-specific models to the present and future of in silico population studies.

<u>Speaker's Bio</u>

Dr Claudio Capelli is a Senior Research Fellow at University College London and Great Ormond Street Hospital (London, UK). Claudio graduated in biomedical engineering from Politecnico di Milano (Milan, Italy). In 2008, he moved to University College London where he got his PhD in Bioengineering. During the past decade, Claudio established collaborations with all the healthcare stakeholders involved with in silico medicine including clinical centres, industry, policy makers and regulatory bodies. He has published extensively his research with over 100 peer-reviewed publications in the field and has been invited to several national and international conferences and training meeting for both engineering and medical audiences.