



Alma Mater Studiorum – Università di Bologna
Dipartimento di Ingegneria Industriale

IRCCS Istituto Ortopedico Rizzoli
Laboratorio di Tecnologia Medica

Interdepartmental Doctoral Programme in Health
Sciences and Technologies



Seminar Announcement

WHAT IS A MODEL? AN EVOLUTION PERSPECTIVE

February 12th, 2021 – 10:00 to 12:00, online

[https://teams.microsoft.com/l/meetup-](https://teams.microsoft.com/l/meetup-join/19%3ameeting_MTVmNDFmYjAtYmY0MC00Mm10LTgzZmEtY2ExN2JhMGZjNzdh%40thread.v2/0?context=%7b%22Tid%22%3a%22e99647dc-1b08-454a-bf8c-699181b389ab%22%2c%22Oid%22%3a%223bed811d-612b-468f-af61-455efdc836c2%22%7d)

[join/19%3ameeting_MTVmNDFmYjAtYmY0MC00Mm10LTgzZmEtY2ExN2JhMGZjNzdh%40thread.v2/0?context=%7b%22Tid%22%3a%22e99647dc-1b08-454a-bf8c-699181b389ab%22%2c%22Oid%22%3a%223bed811d-612b-468f-af61-455efdc836c2%22%7d](https://teams.microsoft.com/l/meetup-join/19%3ameeting_MTVmNDFmYjAtYmY0MC00Mm10LTgzZmEtY2ExN2JhMGZjNzdh%40thread.v2/0?context=%7b%22Tid%22%3a%22e99647dc-1b08-454a-bf8c-699181b389ab%22%2c%22Oid%22%3a%223bed811d-612b-468f-af61-455efdc836c2%22%7d)

Brief Description

This two-hour seminar is open to any student or researcher in training who are interested in learning more about predictive models. While the seminar is specifically designed for researchers working at the interface between technology and medicine, it is of potential interest for anyone working in scientific research. The seminar tries to answer what is an apparently easy question: “What is a scientific model?”. After a brief excursus on the candidate answers offered by lexical analysis and philosophy of science, we try to reverse the point of view: instead of assuming models are a product of science, we try to explore the idea that science is a product of modelling, intended as a cognitive ability that provided competitive advantage to our species during evolution. This journey brings us to a definition of scientific model that has the benefit of being useful with respect to an important problem for biomedical modelling: how to evaluate the credibility of the predictions such models make. After some recalls of philosophy of science (Piece, Popper, Plat), we discuss an additional question: Can you trust more a model or an experiment? This brings us to the case where models are used to test theories, and then finally to the case of models for problem-solving. Here we provide a theoretical framing to the engineering practice of Verification, Validation and Uncertainty Quantification.

About the speaker

Marco Viceconti is full professor of Computational Biomechanics in the department of Industrial Engineering of the Alma Mater Studiorum – University of Bologna, Italy. He also has a joint appointment at the Medical Technology Lab of the Rizzoli Orthopaedic Institute and is visiting professor in the Department of Mechanical Engineering of the University of Sheffield, UK, where he founded and led for seven years the prestigious Insigneo Institute for *in silico* Medicine. Prof Viceconti is an expert of neuromusculoskeletal biomechanics in general, and in particular in the use of subject-specific modelling to support the medical decision. He is one of the key figures in the *in silico* medicine international community: he is the President of the VPH Institute, an international no-profit organisation that coordinates this research community, and Board member of the Avicenna Alliance, which represent the biomedical industry interests in this domain. He is a Fellow of the UK Royal Academy of Engineering. According to SCOPUS he published 339 articles, which received 8756 citations (H-index = 47).

