



VALIDATION AND MODELS IN COMPUTATIONAL BIOMEDICAL SCIENCE:
PHILOSOPHY, ENGINEERING AND SCIENCE

Date and Time: November 30th, 2015. 09:00-17:30

Conference organisers:

Annamaria Carusi, MHS, University of Sheffield; Blanca Rodriguez, CCS, University of Oxford.
In association with Insigneo Institute for *In Silico* Medicine, University of Sheffield

Final Programme

09:00 – 09:30 Registration

09:30 – 11:00 **Validation challenges: sciences and philosophy**

09:30 – 09:45 Annamaria Carusi & Blanca Rodriguez: Overview

09:45 – 10:15 Eve Marder: Computational Studies of Degenerate Mechanisms in Neuronal Circuits

10:15 – 11:00 **Case Studies, Part One**

Luca Modenese, Claudia Mazzà and Marco Viceconti: Validation of Musculoskeletal Models: Are We Really Moving Forward?

Fridolin Gross: Model Selection in Computational Biology

Mark Davies: So I've got my validated model, but now what?

11:00 – 11:30 Break

11:30 – 13:00 **Case Studies, Part Two**

Miles Macleod: What is a model valid for? The purpose-relative nature of model-validity and its importance for interdisciplinary work

David Christini and Trine Krogh-Madsen: Validation of cell-specific cardiac electrophysiology models

Angela Lee, Christopher Rinaldi, Steven Niederer: Fitting and validating heart models using clinical data: now and future

Maria Serban: An epistemology of modeling in scientific and clinical research: The case of deep brain stimulation

Dawn Walker: The Abductive Validation Of Computational Models Of Cellular Interactions – an example

Eric Silverman: Simulations in the Social Sciences: Is Validation Possible?

Discussant: Annamaria Carusi

13:00 – 14:00 Lunch and opportunity for Performance Philosophy led by Sophia Efstathiou

14:00 – 15:40 **Philosophies of modelling: from science, engineering and philosophical perspectives**

14:00 – 14:20 Mieke Boon: Models as epistemic tools: An example from chemical engineering

14:20 – 14:40 Maurice Whelan: Adverse Outcome Pathways

14:40 – 15:00 Barbara Osimani: Opacity, complexity and epistemic asymmetry in pharmacology: a Bayesian approach to combine multiscale evidence for causal assessment

15:00 – 15:20 Eann Patterson: Credibility of Computational Models

15:20 – 15:40 Discussion

15:40 – 16:00 Break

16:00 – 17:00 **Scientific communities**

16:00 – 16:20 Susan Molyneux-Hodgson: Epistemic communities

16:20 – 17:00 Panel

Ilaria Bellantuono

Julian Gunn

Ian Sabroe

Sophia Efstathiou

17:00 – 17:30 Discussion and ways forward

Practical details:

Registration

The workshop is funded by the Wellcome Trust and registration is free. This includes a dinner at a local restaurant (on a first come first served basis). Please register by emailing Beverley Jepson (b.jepson@sheffield.ac.uk) and indicate whether you will join the dinner, by November 13th, 2015.

Workshop Venue

The workshop will be held at [The Edge](#). Please could you let Beverley Jepson (email above) know if you have any special dietary requirements when you confirm attendance of the workshop.

Dinner

A dinner will be held at a local restaurant. Please let Beverley Jepson know if you wish to attend the dinner.

Accommodation

Accommodation is available at [Halifax Hall](#). You can book your room by following this link:

https://www.thebookingbutton.co.uk/properties/halifaxhalldirect?utf8=%E2%9C%2593&locale=en&promotion_code=¤cy=GBP&start_date=29+Nov+2015. Rooms are available on a first come, first served basis.

Travel to Sheffield

Advice on how to get to the University of Sheffield can be found [here](#).

Participants may be interested in also attending the [Multiscale Biology Network](#) meeting, taking place in Sheffield on 1st December, 2015.