POLITECNICO DI TORINO

SmartData@PoliTO

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Maxwell Room 5th Floor DET
Corso Castelfidardo, 42/a

Nicola Politi

DISMA
Politecnico di Torino

Data assimilation for neurobiology modelling

ABSTRACT

In the last decades, large governmental investments fed the new research area of computational neuroscience, allowing to push forward our knowledge about the functioning of the nervous system. At the same time data assimilation (DA) methodologies, whose application have historically been essential in the geosciences, have recently started to be employed in new domains of application.

In this seminar, I will introduce the research work I carried out during my PhD course, which places at the intersection of these two fast-advancing research areas. Specifically, the presentation will focus on the application of DA filtering and smoothing algorithms to biophysically-accurate single-neuron models, using both synthetic and experimental data. Possible applications to models of neural population's activity will be discussed as well.

BIOGRAPHY

Graduated at Sapienza University of Rome, Nicola Politi is now a PhD student in Pure and Applied Mathematics at DISMA, Polytechnic of Turin. His research interests include predictive data assimilation, computational neuroscience, biological modelling, and population-based optimization.

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