

ENABLING TECHNOLOGIES FOR DIGITAL TWINS: MODEL REDUCTION AND SCIENTIFIC MACHINE LEARNING

TRACK NUMBER 600

ALVARO COUTINHO^{*}, ALESSANDRO REALI[†]
AND GIANLUIGI ROZZA[‡]

^{*} Civil Engineering, COPPE/Federal University of Rio de Janeiro
Av. Horácio Macedo, 2030, Rio de Janeiro, RJ 21941-598, Brazil
alvaro@nacad.ufrj.br and www.nacad.ufrj.br

[†] Department of Civil Engineering and Architecture, University of Pavia
via Ferrata 3, 27100 Pavia, Italy
alessandro.reali@unipv.it and <http://www-9.unipv.it/alereali/>

[‡] SISSA, Mathematics Area, mathLab
Via Bonomea 265, 34136 Trieste, Italy, Italy
gianluigi.rozza@sissa.it and <http://people.sissa.it/~grozza/>

Keywords: Digital Twins, Model Order Reduction, Scientific Machine Learning.

ABSTRACT

Nowadays, since more and more powerful heterogeneous computers are continuously emerging, scientists and engineers have been facing unprecedented challenges in adapting their workflows to the challenges posed by digital twins and scientific machine learning. This mini-symposium provides a forum for attendees to exchange information, share best practices, and keep current on the rapidly evolving information technologies impacting the convergence of simulation tools, digital twins, and scientific machine learning. The Mini-Symposium topics cover (but are not limited to):

Computational environments for advanced scientific machine learning and engineering computations

Digital prototyping techniques

Enabling software technologies

Data science in computational mechanics applications

Software libraries and applications for digital twins, model reduction, and machine learning

Supporting tools in performance evaluation, visualization, verification, and validation

Scientific workflows, theoretical frameworks, methodology, and algorithms