



1st Computational Intelligence and Biomathematics Workshop
Congresso Brasileiro de Inteligência Computacional (CBIC-2017)
Institute of Computing, Universidade Federal Fluminense, UFF,
Niteroi, 30th October-1st November, 2017, Brazil

31st October 2017, 16:00-18:00, room 1.

1ST CIBIO-CBIC 2017

COMPUTATIONAL INTELLIGENCE AND BIOMATHEMATICS

Biomathematics can be understood as a far-reaching scientific area including branches such as *biomechanics/systemic biology* and *systems biology*. On the other hand, *computational intelligence* can be understood as a broad scientific branch including topics such as *artificial neural networks* and *evolutionary computing*. On this short workshop, we shall learn what is biomathematics and its ramifications by a set of webinars from researches around the world, and how it can be supported by methodologies from computational intelligence.

Take-home message. Biomathematics is a quite rich source of problems that come from medicine and biology and can be handled by/with computational intelligence; in some cases, the overlapping of biomathematics with computational is inevitable as a direct consequence of biological complexity (i.e., predominance of nonlinearity, stochasticity, and heterogeneity).

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COMPUTATIONAL INTELLIGENCE AND BIOMATHEMATICS

31th October (1st CIBio-CBIC)

Time	Activity
16:00-16:05	Intro
16:05-16:30	Talk #1
16:30-16:55	Talk #2
16:55-17:20	Talk #3
17:20-17:45	Talk #4
17:45-18:00	Panel Q&A with all 4 speakers, organizers, and invited collaborators

TALK#1: AN INTRODUCTION TO WHOLE-CELL MODELING

Jonathan Karr, PhD

TALK#2: HORIZONTAL GENE TRANSFER CONSTRAINT THE EVOLUTION OF REGULATORY CODE IN THE MICROBIAL WORLD

Antonio Gomes, PhD

TALK#3: EVOLUTIONARY AND SWARM INTELLIGENCE METHODS FOR SYSTEMS BIOLOGY

Marco S. Nobile, PhD

TALK#4: BIOMEDICAL IMAGE SEGMENTATION AND ANALYSIS USING MACHINE LEARNING AND COMPUTATIONAL INTELLIGENCE TECHNIQUES

Leonardo Rundo, PhD student; Andrea Tangherloni, PhD student

See more: <https://jorgeguerrabrazil.wixsite.com/cibio2017/agenda>

Organizer: Jorge Guerra Pires, PhD

MODELING WITH COMPUTA TIONAL INTELLIGE NCE

Notwithstanding the eminent applicability of computational intelligence to biomathematics, as a modeling methodology, it does not seem fully exploited this potential. On this workshop you will have the opportunity to discuss this possible overlapping.

“In general, a differential equation picked out of a hat will be insoluble”
Jones&Sleeman