MUFRAMEX
TALKS SERIES

PANEL DISCUSSION

TRANSATLANTIC VIEWS ON EVOLUTIONARY COMPUTATION

CARLOS A. COELLO COELLO
FULL PROFESSOR, CINVESTAV-IPN

NICOLAS BREDECHE
FULL PROFESSOR, SORBONNE UNIVERSITY

OCTOBER 26th , 2022
ONLINE • 6 PM (FRANCE) • 11 AM (CDMX)

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Université Fédérale Toulouse Midi-Pyrénées
CIMAT
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Consejo Nacional de Ciencia y Tecnología

PROGRAM

6 PM (FRANCE) / 11 AM (CDMX)

Schedules may vary slightly.

6:00 PM - 6:05 PM (FRANCE)
11:00 AM - 11:05 AM (CDMX)

Introduction & Speakers' presentation

Hervé Luga, full professor, University of Toulouse (France)
Jean-Bernard Hayet, full professor, CIMAT (Mexico)

6:05 PM - 6:35 PM (FRANCE)
11:05 AM - 11:35 AM (CDMX)

Evolutionary Computation Research in Mexico

Carlos A. Coello Coello, full professor, CINVESTAV-IPN (Mexico)

In this talk, an overview of the main research groups working in evolutionary computation in Mexico will be provided, together with some of their research topics. The talk will also include some brief information about graduate programs available in Mexico, which involve evolutionary computation as one of their specialization areas.

6:35 PM - 7:05 PM (FRANCE)
11:35 AM - 12:05 PM (CDMX)

Evolutionary Robotics, Social Learning and Morphological Computation

Nicolas Bredeche, full professor, Sorbonne University (France)

Nicolas Bredeche will give an overview of evolutionary swarm robotics, which is the use of evolutionary algorithms to endow a swarm of robots with a capability to learn new behaviours. While originally loosely inspired from the process of biological evolution, these algorithms face challenges that are usually not addressed in robotics, but arise from the interactions of robots with their environment, and with each other. He will show how robots can socially learn to coordinate in an unknown environment based solely on local interactions, as well as how robots can learn to perform morphological computation, which means to use one's own body, rather than one's brain, to solve problems such as coordinated motion and search for resources.

7:05 PM - 7:35 PM (FRANCE)
12:05 PM - 12:35 PM (CDMX)

Questions & Answers

BIOGRAPHIES

CARLOS A. COELLO COELLO

FULL PROFESSOR, CINVESTAV-IPN (MEXICO)

Carlos Artemio Coello Coello received a PhD in Computer Science from Tulane University (USA) in 1996. His research has mainly focused on the design of new multi-objective optimization algorithms based on bio-inspired metaheuristics (e.g., evolutionary algorithms), which is an area in which he has made pioneering contributions. He has received several awards, including the National Research Award (in 2007) from the Mexican Academy of Science (in the area of exact sciences), the 2009 Medal to the Scientific Merit from Mexico City's congress and the 2012 National Medal of Science in Physics, Mathematics and Natural Sciences from Mexico's presidency (this is the most important award that a scientist can receive in Mexico). Additionally, he is the recipient of the 2013 IEEE Kiyo Tomiyasu Award, "for pioneering contributions to single- and multiobjective optimization techniques using bioinspired metaheuristics", of the 2016 The World Academy of Sciences (TWAS) Award in "Engineering Sciences", and of the 2021 IEEE Computational Intelligence Society Evolutionary Computation Pioneer Award. Since January 2011, he is an IEEE Fellow. He is currently the Editor-in-Chief of the IEEE Transactions on Evolutionary Computation. He is Full Professor with distinction (Investigador Cinvestav 3F) at the Computer Science Department of CINVESTAV-IPN in Mexico City, Mexico

NICOLAS BREDECHE

FULL PROFESSOR, SORBONNE UNIVERSITY (FRANCE)

Nicolas Bredeche is Professeur des Universités (full professor) in computer science at Sorbonne University in Paris, France. He is a member of the Institut des Systèmes Intelligents et de Robotique (Campus Pierre et Marie Curie). His research activity revolves around adaptive collective systems with two motivations: (1) to understand natural systems, using individual-based modeling and simulation methods (e.g.: collective decision making, evolution of cooperation) and (2) to design adaptive collective/swarm robotic systems using evolutionary and social learning algorithms (e.g.: behavior optimization for collective robotics, online distributed evolutionary learning for swarm robotics). He is particularly interested in how a collective of individuals, whether artificial or natural, can learn how to self-organize and survive together in open environments.

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