

SEMINAR ANNOUNCEMENT

Thursday May 22nd, 2025

at 03:30 pm

aula U6-01f Agorà Building (U6)

and online <https://unimib.webex.com/meet/davide.ciucci->

Who said that? Disassembling Computational Intelligence, one assumption at a time

Speaker

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Abstract

Computational Intelligence investigates algorithms inspired by biological, natural, and linguistic principles. It focuses on creating computational paradigms that can learn, adapt, and make decisions in complex environments, often tackling problems that are difficult for traditional computing methods to solve. Two important pillars of Computational Intelligence are Evolutionary Computation (EC) and Swarm Intelligence (SI), which can be effectively used to perform global optimization. The optimization usually consists in iteratively exploring a fixed hyper-dimensional landscape induced by some complex fitness function until the budget of fitness evaluations is depleted. In this talk, I will dissect this well-established description of the optimization process, showing that none of these assumptions is really necessary. Astoundingly, some of them can even harm the performance. I will present some concrete examples based on the Particle Swarm Optimization algorithm, here used as a foundation for the development of self-adaptive, space-bending, and time-traveling optimization algorithms.

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