

From Nature to Silicon: The Evolution of the Next Generation of AI

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Entrada libre hasta completar el aforo
on line: <https://meet.google.com/wgm-buow-xdr>

Resumen:

What if the same principles that shaped life on Earth could also shape the future of artificial intelligence? Evolutionary computation (EC) is a family of algorithms inspired by natural selection — survival of the fittest translated into code. Just as species evolve to adapt to their environments, EC enables machines to evolve solutions to complex problems. EC can be applied as machine learning itself, creating models and solutions that rival traditional techniques while offering greater flexibility and interpretability. At the same time, it acts as a powerful enhancer of machine learning, automatically optimizing architectures, hyperparameters, and training strategies in ways that reduce costs, improve efficiency, and unlock new levels of performance. Looking ahead, EC may prove especially valuable in the world of large language models (LLMs), which are growing ever larger and more resource-hungry. By evolving specialized components, guiding model compression, and enabling novel training strategies, EC offers a pathway toward more sustainable, adaptive, and energy-efficient AI — and could play a central role in shaping the next breakthroughs in intelligence.

Sobre Nuno Lourenço:

Nuno Lourenço is an Associate Professor at the Department of Informatics Engineering of the University of Coimbra, where he earned his Ph.D. in Information Science and Technology in 2016. He has been a member of the Centre for Informatics and Systems of the University of Coimbra (CISUC) since 2009 and currently coordinates the Bio-Inspired Artificial Intelligence (bAI) research group. His research focuses on bio-inspired algorithms, optimisation, and machine learning, with recent work exploring energy-efficient neuroevolution, sexual selection, and evolutionary machine learning. He is one of the main contributors to Structured Grammatical Evolution and Probabilistic Grammatical Evolution, and co-designed DENSER, a framework for the automatic design of deep neural networks using evolutionary computation.