

Carles Sierra

From Teacher Intuition to AI-Supported Team Formation: Ten Years of EduTeams Research

Collaborative learning is recognised as a valuable educational activity, yet team formation often remains based on intuitive criteria, resulting in outcomes that are difficult to reproduce. In this talk, I present EduTeams, an AI-supported team formation grounded in computational modelling of collaborative learning that leverages educational data and artificial intelligence techniques to form teams in an informed, explicit, and assessable manner. EduTeams' model-driven team formation can be parameterised according to learners' competencies, cognitive profiles, social dynamics, and pedagogical objectives to generate teams that maximise interaction quality and collective performance. Drawing on real-world experiments in educational contexts, I show how model-driven team formation can outperform traditional methods and produce replicable scientific evidence. The talk argues that the potential value of AI in education lies not in automating decisions but in making them explainable, verifiable, and improved, thereby fostering data-driven educational practices.

About

Carles Sierra is a leading researcher in artificial intelligence, specializing in modeling cognitive and social behaviors in multi-agent systems and collaborative learning. He is a Research Professor at the Spanish National Research Council (CSIC), the current Director of the Artificial Intelligence Research Institute (IIIA), and the past President of the European Association for AI (EurlA). He has led research that bridges theoretical AI foundations with practical applications in education, public policy, and human-agent collaboration. His work explores how agents can reason about each other's beliefs and intentions using Theory of Mind techniques, contributing to the development of AI systems that are socially aware, ethically aligned, and capable of reflective decision-making.

Sierra has also applied these insights to educational technologies, particularly through the design and evaluation of **EduTeams**, a data-driven system for forming high-performing collaborative learning groups. His research emphasizes rigorous data collection, empirical evaluation, and the integration of quantitative and qualitative evidence to guide both AI development and educational practice.

Throughout his career, Sierra has published extensively, led international research collaborations, and received awards recognizing his contributions to artificial intelligence, automated negotiation, and multi-agent systems. Beyond research, he is committed to shaping AI policy and fostering an evidence-based culture in education and science, ensuring that AI tools are innovative, transparent, accountable, and socially beneficial.