

Call for Papers

Special Session on EC and Games: from theory to applications

2017 IEEE Congress on Evolutionary Computation (CEC2017)

Donostia - San Sebastián, Spain, June 5-8, 2017

Aim and Scope:

Game-theoretic modelling and solution methods are important in many application areas such as: biology, robotics, defense, economics, social science, computer games and AI. Evolutionary computation has been applied not only to searching for strategies, but also to other aspects of games such as the generation of games, learning players' behavior, design of non-player characters and more.

The aim of this special session is to bring together the IEEE-CEC community of researchers who are interested in the *theory and applications of Evolutionary Games (EG)* to present their recent research findings and work.

Note: The term *evolutionary game theory* commonly refers to game models of evolution in nature. Here, this term refers also to game models of evolutionary computations, which may be associated with the development of technical systems.

Topics:

Topics of interest include but are not limited to:

Theory including:

- Analysis of equilibrium and evolutionary stable strategies in evolutionary games
- Pareto optimality in evolutionary games
- Theoretical analysis of evolutionary games
- Theoretical analysis of mechanism design and social choice
- Theoretical analysis of uncertainty, robustness, and delays in evolutionary games

Computational Methods such as:

- Co-evolutionary learning of strategies
- Evolutionary design of NPCs
- Evolutionary machine learning applied to game theoretic models
- Evolutionary multi-objective games
- GP, GA, ES, DE, MC and game-theoretic models
- Game-generation using evolutionary computation techniques
- Generalization and transfer learning in co-evolutionary learning of game strategies

Hybrid methods and games
Neuroevolution and games
One-sided evolutionary search of strategies
Rolling horizon evolutionary algorithms

Applications including:

Applications of EG in computer games and AI
Applications of EG in robotics
Applications of EG in biological systems
Applications of EG in economics
Applications of EG in defense (air, land, sea, and cyber)
Applications of EG in social science
Applications of EG in engineering design and manufacturing
Real-life examples of using EG

Important dates:

- Deadline for submission of full papers: 16 January 2017
- Notification of acceptance: 26 February 2017
- Deadline for Final paper submission: 12 March 2017
- Conference dates: 5-8 June, 2017

Paper Submission:

Please follow the [IEEE CEC 2017 Submission Web Site](#). Special session papers are treated the same way as regular conference papers. Please specify that your paper is for the [Special Session on EC and Games: from theory to applications](#). All papers accepted and presented at CEC 2017 will be included in the conference proceedings published by IEEE Explore, which are typically indexed by EI.

Members of the International Program Committee:

Simon Lucas
Mike Preuss
Yew Soon Ong
Joshua Knowles
Kay Chen Tan
Sushil Louis
Daniel Ashlock
Moshe Sipper
Jacek Mandziuk
Garrison W. Greenwood
Amiram Moshaiov
Abhishek Gupta
Hussein Abbass

Organizers:

Amiram Moshaiov, Abhishek Gupta, and Hussein Abbass

Biography of the Organizers

Amiram Moshaiov is a faculty member of the School of Mechanical Engineering and the Sagol School of Neuroscience at Tel-Aviv University. Formerly, he was a faculty member at MIT, USA. He is a member of the editorial board of the Journal of Memetic Computing and a reviewer to many other scientific journals. He is a member of the Working Group on Artificial Life and Complex Adaptive Systems of IEEE, and was a member of the Management Board of the European Network of Excellence in Robotics. He was the originator and Co-Chair of the IEEE/RSJ IROS Workshop on Multi-Objective Robotics and on Multi-Competence Optimization and Adaptation in Robotics and A-life and of the related GECCO Workshop on the Evolution of Natural and Artificial System. He participated in IPCs of conferences such as: The IEEE Int. Conf. on Systems, Man, and Cybernetics, The IEEE/RSJ Int. Conf. on Intelligent Robots and Systems, The IEEE Congress on Evolutionary Computation, The IEEE World Congress on Computational Intelligence, The IEEE Sym. on Artificial Life and The European Robotic Symposium. His research interests are in methods such as: Computational Intelligence, Interactive Evolutionary Computation, Multi-criteria Decision Making, Multi-Objective Optimization and Adaptation, and Multi-objective Games.

Abhishek Gupta received the PhD degree in Engineering Science from the University of Auckland in 2014, where his initial research was focused on the mathematical modeling of composite materials, game modelling of their manufacturing processes and their solution by evolutionary multi-objective optimization. He is presently a Research Scientist in the School of Computer Science and Engineering, Nanyang Technological University, Singapore. His current research interests lie in the field of computational intelligence, spanning topics in memetic computing, Bayesian optimization, multitask problem-solving, and bilevel games. Some of the key real-world applications he is interested in include intelligent engineering design, logistics systems planning, and transportation research.

Hussein Abbass is a full Professor with the University of New South Wales, Canberra Campus, Australia. Prof. Abbass is a fellow of the UK Operational Research Society and a fellow of the Australian Computer Society. He is the Vice-President for Technical Activities (2016-2017) for IEEE-CIS and the National President (2016-) for the Australian Society for Operations Research. He is an Associate Editor of six international journals, including the IEEE Transactions on Evolutionary Computation, and the IEEE Transactions on Cybernetics, and has published 200+ refereed papers.