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Applications of Evolutionary Computing

EvoWorkshops 2002:
EvoCOP, EvoIASP, EvoSTIM/EvoPLAN
Kinsale, Ireland, April 3-4, 2002
Proceedings

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Preface

Evolutionary Computation (EC), which involves the study of problem solving, optimization, and machine learning techniques inspired by genetics and natural selection, has been able to draw the attention of an increasing number of researchers in several different fields. The number of applications and different disciplines that benefit from EC techniques is probably the most immediate proof of EC's high flexibility and potential. In recent years, a number of studies and results have been reported in the literature which have shown the capability of EC techniques to solve difficult problems in several domains.

When EvoNet organized its first events in 1998, the chosen format was a collection of workshops that dealt with both theoretical and application-oriented aspects of EC. While EuroGP soon became the main European event dedicated to Genetic Programming (GP), the number of workshops dedicated to specific EC applications increased. This led, in 2000, to the re-organization of EvoNet events into two main co-located independent sections: EuroGP became a single-track conference (the First European Conference on Genetic Programming), while the application-oriented workshops were merged in a multi-track event: EvoWorkshops 2000.

This volume contains the proceedings of EvoWorkshops 2002, which included the Second European Workshop on Evolutionary Computation in Combinatorial Optimization (EvoCOP), the Fourth European Workshop on Evolutionary Computation in Image Analysis and Signal Processing (EvoIASP), and the Third European Workshop on Evolutionary Scheduling and Timetabling (EvoSTIM). These workshops were held in Kinsale, Ireland, on 3-4 April 2002, jointly with EuroGP 2002, the Fifth European Conference on Genetic Programming.

EvoCOP is concerned with a variety of combinatorial optimization problems of academic and industrial interest. The workshop covers problem analyses, studies of algorithmic techniques used within evolutionary algorithms and related heuristics, and performance comparisons of different approaches.

EvoIASP was the first event ever specifically dedicated to the applications of EC to image analysis and signal processing. After four consecutive workshops, held between 1999 and 2002, it has become a traditional appointment for European and non-European researchers in those fields.

EvoSTIM/EvoPLAN is a merger of the third EvoSTIM workshop – a European event specifically dedicated to the applications of evolutionary computation to scheduling and timetabling – and the second EvoPLAN workshop – a forum specialized on evolutionary methods in the field of AI Planning. The workshop presents the latest results on evolutionary techniques in the fields of scheduling, timetabling, and AI planning. These fields are amongst the most successful applications for evolutionary techniques and are challenging for the developement of new methods.

EvoWorkshops 2002 has confirmed its tradition in providing researchers in these fields, as well as people from industry, an opportunity to present their latest research, discuss current developments and applications, besides fostering closer future interaction between members of all scientific communities that may benefit from the application of EC techniques.

The workshops were sponsored by EvoNet, the European Network of Excellence in Evolutionary Computation. Their organization was made possible thanks to the active participation of members of EvoIASP and EvoSTIM, the EvoNet working groups on Evolutionary Image Analysis and Signal Processing and on Evolutionary Scheduling and Timetabling, and of several other EvoNet members.

A total of 33 papers were accepted for publication out of more than 50 papers submitted to the 3 workshops. The rather low acceptance rate of EvoWorkshops 2002, along with the significant number of submissions, guarantees for the quality of the papers presented at the workshops, while showing the liveliness of the scientific movement in the corresponding fields. We would like to give credit to all members of the program committee, to whom we are very grateful for their quick and thorough work.

April 2002

Stefano Cagnoni
Jens Gottlieb
Emma Hart
Martin Middendorf
Günther R. Raidl

Organization

EvoWorkshops 2002 were organized by EvoNet jointly with EuroGP 2002.

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EvoNet, the Network of Excellence on Evolutionary Computing.

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