

Preface

Multi-criteria optimization deals with multiple, often conflicting objectives which naturally arise in a real-world scenario. The field of multi-criteria decision making (MCDM) is well established, investigated by many researchers and scientists, and widely applied in practice. Unlike in single-objective optimization, a multi-criteria optimization problem gives rise to a number of optimal solutions, known as Pareto-optimal solutions, of which none can be said to be better than the others with respect to all objectives. Thus, one of the primary goals in multi-criteria optimization is to find or to approximate the set of Pareto-optimal solutions. Since evolutionary algorithms work with a population of solutions, they have been used in multi-criteria optimization for more than a decade. To date, there exist a number of evolutionary approaches and application case studies, demonstrating the usefulness and efficiency of evolutionary multi-criteria optimization (EMO). Due to the growing interest in EMO, the general chairs envisaged organizing this first-ever international conference covering all aspects of the intersection of evolutionary computation and classical MCDM. The aim was to promote and share research activities in this promising field.

The first international conference on evolutionary multi-criteria optimization (EMO 2001) was held in Zürich at the Swiss Federal Institute of Technology (ETH) on March 7–9, 2001. This event included two keynote speeches, one delivered by Ralph E. Steuer on current state-of-the-art methodology and the other delivered by Ian C. Parmee on real-world applications of evolutionary techniques. Furthermore, two extended tutorials were presented, one on classical multi-criteria decision making methodologies by Kaisa Miettinen and another one on evolutionary algorithms by Carlos A. Coello Coello.

In response to the call for papers, 87 papers from 27 countries were submitted, each of which was independently reviewed by at least three members of the program committee. This volume presents a selection of 45 of the refereed papers, together with contributions based on the invited talks and tutorials.

We would like to express our appreciation to the keynote speakers who accepted our invitation, to the tutorial organizers, to all authors who submitted papers to EMO 2001, and to Marco Laumanns and Monica Fricker for their invaluable help in organizing the conference.

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Organization

EMO 2001 took place from March 7th to 9th, 2001 at the Swiss Federal Institute of Technology (ETH) Zürich, Switzerland, and was organized in cooperation with ACM/SIGART, IEEE Neural Network Council, and the International Society for Genetic and Evolutionary Computation (ISGEC).

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