Preface

SAGA 2001, the first Symposium on Stochastic Algorithms, Foundations and Applications, took place on December 13–14, 2001 in Berlin, Germany. The present volume comprises contributed papers and four invited talks that were included in the final program of the symposium.

Stochastic algorithms constitute a general approach to finding approximate solutions to a wide variety of problems. Although there is no formal proof that stochastic algorithms perform better than deterministic ones, there is evidence by empirical observations that stochastic algorithms produce for a broad range of applications near-optimal solutions in a reasonable run-time.

The symposium aims to provide a forum for presentation of original research in the design and analysis, experimental evaluation, and real-world application of stochastic algorithms. It focuses, in particular, on new algorithmic ideas involving stochastic decisions and exploiting probabilistic properties of the underlying problem domain. The program of the symposium reflects the effort to promote cooperation among practitioners and theoreticians and among algorithmic and complexity researchers of the field. In this context, we would like to express our special gratitude to DaimlerChrysler AG for supporting SAGA 2001.

The contributed papers included in the proceedings present results in the following areas: Network and distributed algorithms; local search methods for combinatorial optimization with application to constraint satisfaction problems, manufacturing systems, motor control unit calibration, and packing flexible objects; and computational learning theory.

The invited talk by Juraj Hromkovič surveys fundamental results about randomized communication complexity. In the talk, the efficiency of randomized communication is related to deterministic and nondeterministic communication models. Martin Sauerhoff discusses randomized variants of branching programs which allow the relative power of deterministic, nondeterministic, and randomized algorithms to be studied. Recent results on random 3-SAT formulas are summarized by Gregory Sorkin. The focus is on bounds for their density and shows how to tune so-called myopic algorithms optimally. Thomas Zeugmann gives an overview on stochastic finite learning that connects concepts from PAC learning and models of inductive inference learning.

Our special thanks go to all who supported SAGA 2001, to all authors who submitted papers, to all members of the program committee who provided very detailed referee reports, to the invited speakers, to the organizing committee, and to the sponsoring institutions.

December 2001   Kathleen Steinhöfel

Organization

SAGA 2001 was organized by the GMD - National Research Center for Information Technology, Institute for Computer Architecture and Software Engineering FIRST, Berlin.

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