

## Foreword

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This issue contains nine selected papers from *FUN with Algorithms 2007*, the fourth conference in a series whose stated mission is “designing, analyzing, and using algorithms that provide amusing, witty, but nonetheless original and scientifically profound contributions to the area.” Born in 1998 as a bright initiative of an Italian-Canadian team, the conference series has always taken place on the sea shores of Tuscany (in the small town of Castiglioncello, this time).

Forty-one papers were submitted to the conference from twenty-five different countries. Twenty of these papers were accepted. Eight of them were selected at the end of the conference as possible contributions to this issue, and were finally accepted after further refereeing according to TOCS standards. In addition, three fascinating keynote speeches were given at the conference by Giuseppe Di Battista of the University of Roma Tre, Nicola Santoro of Carleton University, and Luca Trevisan of the University of California at Berkeley. A paper covering the material of the first speech is also included in this issue.

As in the previous editions of the conference, the authors were given the freedom of directing their speculations toward algorithmic research of any sort. As a

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consequence, it is a bit difficult to classify the papers in this special issue into rigid areas. Still, some common lines emerge. The paper of Di Battista et al. is a fascinating step towards determining how badly a graph can be embedded in a grid, in terms of number of bends and drawing area. This pessimistic line is also followed by Agrawal et al., who use competitive analysis to determine the worst on-line strategy for page-replacement, i.e., one that maximizes cache misses. The paper of Iwama et al., instead, can be paired to the one of Di Battista for its focus on difficult visualization problems, here related to using Excel's and other styles of border palettes for drawing tables with a specific layout of contour lines.

Four other papers take the moves from the algorithmic solution of some popular game and extend the results to a more general setting, thus casting new light over the understanding of some fundamental problem in Computer Science. The paper of Alt et al. analyzes wooden puzzles to extend the results to problems on sets of integers. Lampis et al. start from the classical wolf-goat-cabbage puzzle to approach a set of transportation problems and graph algorithms. Sudoku is instead considered by Gradwohl et al. with a classical Zero-Knowledge protocol, where a prover shows to have solved one such puzzle without revealing the actual solution to the verifier. Finally, "motivated" by the need of selecting a set of photographs after a journey, Boldi et al. determine upper and lower computational bounds to the problem of extracting top elements from a poset.

The last two papers are pure FUN applied to different algorithmic areas. Luccio studies intruder capture in a distributed system, where agents with limited capabilities move along the edges of a fractal Sierpinsky graph, while Fleisher examines the known Hydra survival problem of mathematical logic (disappearance of a tree under some restructuring operations), finding properties for making the monster immortal or forcing it to die.

In addition to thanking all the referees for their timely and competent reviews, special thanks are due to Giuseppe Prencipe for his unrelenting activity in organizing the conference and co-editing the proceedings. Without his work this issue would probably not exist.