Editors' Introduction to the Special Issue on "MATCOS-13 conference"

It is passing almost two years since we successfully concluded *Middle-European Conference on Applied Theoretical Computer Science*, MATCOS-13 conference, that was held at the University of Primorska as a part of multiconference Information Society. The conference welcomed papers from a wide spectrum of topics, however with a clear emphasis on applicability of research of theoretical Computer Science. Moreover, out of 15 regular papers programme committee chairs invited seven papers to participate in a special issue of journal Informatica.

As the conference topics are colourful, so are the selected papers. However, all of them present two emphases of the conference – use of the theoretical Computer Science in practical problem solving. The selected papers are arranged from the most theoretical to the most practical. Therefore we start with graph related problems.

The first paper, *Barrier Resilience of Visibility Polygons*, is related to the visibility problem in Computational Geometry. The problem asks how to reach a target *t* from a source *s* in such a way that the least number of observers see your travel. In the second paper we dig even deeper into graph theory. The paper, *The Random Hypergraph Assignment Problem*, generalizes Parisi's proven conjecture on the expected optimal cost value of an assignment problem on a complete bipartite graph to a class of bipartite hypergraphs. The last among the graph related problems, *Strategic deployment in graphs*, studies a problem in a graph where a vertex weight represents the size of force needed to conquer the vertex, while an edge weight represents the minimum force needed to traverse it. The problem asks to minimize the initial size of force to traverse the whole graph. The fourth graph related paper, *Relaxations in Practical Clustering and Blockmodeling*, analyses different approaches to clustering in networks. The authors show that most of the practical approaches can be viewed as relaxations od four basic graph theoretic approaches. Finally, the last graph related problem, *Integer Programming Models for the Target Visitation Problem*, is also an optimization problem on graphs. Indeed, it is related to travelling salesman problem with additional preference to the order of visited sites. The authors present several integer programme solutions and study their suitability for branch-and-cut approaches.

The last two papers included in this special issue represent the other pole of the conference topic. They are much more practically oriented. In the first one, *Estimation of cervix cancer spatial distribution for brachytherapy applicator analysis*, the authors study a problem of applying radiation to the tissue. The problem is modelled in 3D space. If we started with computation geometry we also wrap up with a topic related to it. Namely, the last paper, *Detection of ground in point-clouds generated from stereo-pair images*, presents a novel approach to filter data to construct digital terrain models.

We wish you an interesting reading!

Andrej Brodnik
Gábor Galambos
Editors