# Introduction to Special Issue ALENEX'12

This special issue is dedicated to selected papers from the 14th Meeting on Algorithm Engineering and Experiments (ALENEX'12), which was held in Kyoto, Japan, on January 16, 2012. ALENEX provides a forum for the presentation of original research in all aspects of algorithm engineering, including the implementation and experimental evaluation of algorithms and data structures. Out of 49 submissions, only 15 have been accepted for presentation at the meeting and for inclusion into the conference proceedings. This volume contains expanded and revised versions of three outstanding articles from the program. The papers were carefully reviewed according to the high standards of the *ACM Journal of Experimental Algorithms*.

In the article "User-Constrained Multimodal Route Planning," Dibbelt, Pajor, and Wagner study the problem of computing optimal journeys in a multiple transportation network. They present the first multimodal speedup technique that is able to handle arbitrary mode-sequence constraints as input to the query. Adapting Contraction Hierarchies to their model and using further engineering techniques yields a tremendous speedup compared to Dijkstra's algorithm. The authors evaluate their approach in extensive experimental studies on a number of assembled real-world networks (e.g., the road and railway networks of Western Europe).

Görke, Kappes, and Wagner present "Experiments on Density-Contrained Graph Clustering." They evaluate the qualitative behavior of greedy bottom-up heuristics driven by cut-based objectives and constrained by intracluster density. They compare a large number of state-of-the-art algorithms from the literature. A greedy vertex moving algorithm and a well-known modularity-based algorithm turn out to behave very well. They also study which combinations of cut-based inter- and intracluster measures are suitable for identifying a hidden reference clustering in synthetic graphs. Their significant case study provides insights about the usage of bicriterial, cut-based measures for graph clusterings.

Tries are the topic of the article by Grossi and Ottaviano titled "Fast Compressed Tries through Path Decompositions." The authors suggest new succincjt representations of path-decomposed tries with the aim to guarantee low average height and enable the compression of the labels. On the practical side, they reduce the space requirement and guarantee fast query times using algorithms by exploiting the memory hierarchy. Careful experimental studies show that their new compressed dictionary for strings is able to reduce the space usage while keeping the query times predictable compared to state-of-the-art compressed dictionaries. Moreover, their new monotone minimal perfect hash for strings perform much faster than state-of-the-art trie-based perfect hash functions while using comparable space.

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