Editorial

We are delighted to present a Special Issue of *ACM Transactions on Algorithms*, containing full versions of five papers that were presented at the 26th Annual ACM-SIAM Symposium on Discrete Algorithms (SODA 2015) in San Diego, California, on January 4–6, 2015. These papers, selected on the basis of their high rating by the conference program committee, have been thoroughly reviewed according to the journal's highest standards.

In “Property Testing on Product Distributions: Optimal Testers for Bounded Derivative Properties,” Deeparnab Chakrabarty, Kashyap Dixit, Madhav Jha and C. Seshadhri provide a general tester for bounded derivative properties, such as monotonicity or Lipschitz-ness, on arbitrary product distributions. The authors complement their algorithms with matching lower bounds. An interesting aspect of the paper is the connection to the average depth of binary search trees, which provides a justification for the optimality of query complexity.

A classic result of Karger shows that sampling edges uniformly at random in an undirected graph scales its edge connectivity by the sampling parameter. In “Tight Bounds on Vertex Connectivity under Vertex Sampling,” Keren Censor-Hillel, Mohsen Ghaffari, George Giakkoupis, Bernhard Haeupler, and Fabian Kuhn provide an analogous result for sampling vertices to scale the vertex connectivity of an undirected graph. The new results are obtained using a novel concept of semi-connectivity.

In “Dynamic Facility Location via Exponential Clocks,” Hyung-Chan An, Ashkan Norouzi Fard, and Ola Svensson develop an elegant algorithm for the facility location problem on a dynamically changing metric space, based on a novel rounding algorithm for the natural linear programming relaxation of the problem.

In “On Uniform Capacitated k -Median Beyond the Natural LP Relaxation,” Shi Li gives a new algorithm for the well-studied k -median problem with uniform capacities that uses a novel linear programming formulation of the problem that overcomes a well-known integrality gap barrier of the standard relaxation.

Finally, in “An Improved Approximation for k -median, and Positive Correlation in Budgeted Optimization,” Jarosław Byrka, Thomas Pensyl, Bartosz Rybicki, Aravind Srinivasan, and Khoa Trinh improve the approximation ratio of the k -median problem by giving a general technique for addressing positive correlation effects in dependent rounding settings.

The editors would like to thank the authors and the reviewers for their contributions in bringing this special issue out on time.

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