18th International Symposium on Experimental Algorithms

SEA 2020, June 16–18, 2020, Catania, Italy

Edited by

Simone Faro

Domenico Cantone

LIPIcs – Vol. 160 – SEA 2020 www.dagstuhl.de/lipics

Editors

Simone Faro
University of Catania, Italy
faro@dmi.unict.it

Domenico Cantone
University of Catania, Italy
domenico.cantone@unict.it

ACM Classification 2012
Theory of computation → Design and analysis of algorithms

ISBN 978-3-95977-148-1

Published online and open access by
Schloss Dagstuhl – Leibniz-Zentrum für Informatik GmbH, Dagstuhl Publishing, Saarbrücken/Wadern, Germany. Online available at https://www.dagstuhl.de/dagpub/978-3-95977-148-1.

Publication date
June, 2020

Bibliographic information published by the Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at https://portal.dnb.de.

Digital Object Identifier: 10.4230/LIPIcs.SEA.2020.0

LIPIcs – Leibniz International Proceedings in Informatics

LIPIcs is a series of high-quality conference proceedings across all fields in informatics. LIPIcs volumes are published according to the principle of Open Access, i.e., they are available online and free of charge.

ISSN 1868-8969

https://www.dagstuhl.de/lipics

Contents

18th International Symposium on Experimental Algorithms (SEA 2020).
Editors: Simone Faro and Domenico Cantone
Leibniz International Proceedings in Informatics
LIPICS Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany

Preface

We proudly present the collection of the papers accepted for presentation at the 18th edition of the International Symposium on Experimental Algorithms (SEA 2020), originally planned to be held in Catania (Italy) from June 16 to 18, 2020. Unfortunately, since March 2020, the situation surrounding the COVID19 outbreak has evolved very rapidly also outside of China, endangering the health and safety of everyone, which are our highest priorities. Thus, based on the current health situation in Italy and in the rest of world, the leadership of SEA 2020 has decided that the work of this year symposium will be delivered online to all registered attendees, rather than by the planned physical meeting.

SEA, previously known as Workshop on Experimental Algorithms (WEA), is an international forum for researchers in the area of the design, analysis, and experimental evaluation and engineering of algorithms, as well as in various aspects of computational optimization and its applications.

The symposium aims at attracting papers from both the Computer Science and the Operations Research/Mathematical Programming communities. The main theme of the symposium is the role of experimentation and of algorithm engineering techniques in the design and evaluation of algorithms and data structures. Submissions to SEA are requested to present significant contributions supported by experimental evaluation, methodological issues in the design and interpretation of experiments, the use of heuristics and meta-heuritics, or application-driven case studies that deepen the understanding of the complexity of a problem. A main goal of SEA is also the creation of a friendly environment that can lead to and ease the establishment or strengthening of scientific collaborations and exchanges among attendees. For this reason, the symposium solicits high-quality original research papers (including significant work-in-progress) on any aspect of experimental algorithms.

Each submission to SEA 2020 was reviewed by at least three Program Committee members or external reviewers. After a careful peer review and evaluation process, 24 papers were accepted for presentation and for inclusion in the LIPIcs proceedings, according to the reviewers' recommendations. The acceptance rate was 52%.

The 18th edition of SEA was organized by the University of Catania. We thank our university and, more specifically, our Department of Mathematics and Computer Science for their support. We also thank the "Gruppo Nazionale per il Calcolo Scientifico" (GNCS/Indam) for its support in the organization of the event. Thanks are also due to the editors of the *ACM Journal of Experimental Algorithmics* for their interest in hosting a special issue of the best papers presented at SEA 2020. Finally, we express our gratitude to the members of the Program Committee for their support, collaboration, and very good work. Finally, we express our gratitude to the EasyChair platform.

Catania, June 11 2020
Simone Faro and Domenico Cantone

18th International Symposium on Experimental Algorithms (SEA 2020).
Editors: Simone Faro and Domenico Cantone
Leibniz International Proceedings in Informatics
LIPICS Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany

Steering Committee

- Edoardo Amaldi, Politecnico di Milano (Italy)
- David A. Bader, New Jersey Institute of Technology (US)
- Josep Diaz, Universitat Politecnica de Catalunya (Spain)
- Giuseppe F. Italiano, University of Rome Tor Vergata (Italy)
- Klaus Jansen, University of Kiel (Germany)
- Kurt Mehlhorn, Max-Planck-Institut für Informatik (Germany)
- Ian Munro, University of Waterloo (Canada)
- Sotiris Nikoletseas, Patras University (Greece)
- Jose Rolim, University of Geneva (Switzerland)
- Pavlos Spirakis, University of Liverpool (UK)

18th International Symposium on Experimental Algorithms (SEA 2020).
Editors: Simone Faro and Domenico Cantone

Leibniz International Proceedings in Informatics
Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany

Organization

Program Chairs

- Domenico Cantone, University of Catania (Italy)
- Simone Faro, University of Catania (Italy)

Program Committee

- Golnaz Badkobeh, Goldsmiths University of London (UK)
- Gianfranco Bilardi, University of Padova (Italy)
- Christina Boucher, University of Florida (USA)
- Pierluigi Crescenzi, Université de Paris-IRIF (France)
- Maxime Crochemore, Kings College London (UK)
- Paola Festa, University of Naples Federico II (Italy)
- Irene Finocchi, Sapienza University of Rome (Italy)
- Travis Gagie, Dalhousie University (Canada)
- Arie Koster, RWTH Aachen University (Germany)
- Oguzhan Kulekci, Istanbul Technical University (Turkey)
- Susana Ladra, University of A Coruña (Spain)
- Thierry Lecroq, University of Rouen Normandy (France)
- Veli Mäkinen, University of Helsinki (Finland)
- Petra Mutzel, TU Dortmund (Germany)
- Gonzalo Navarro, University of Chile (Chile)
- Panos Pardalos, University of Florida (USA)
- Nadia Pisanti, University of Pisa (Italy)
- Ely Porat, Bar-Ilan University (Israel)
- Simon J. Puglisi, University of Helsinki (Finland)
- Ilya Razenshteyn, Microsoft Research (USA)
- Mauricio Resende, Amazon.com Inc. (USA)
- Marie-France Sagot, INRIA (France)
- Alessandra Sala, Bell Labs (Ireland)
- Peter Sanders, Karlsruhe Institute of Technology (Germany)
- Stefan Schmid, University of Vienna (Austria)
- Sabine Storandt, Universität Konstanz (Germany)
- Dorothea Wagner, Karlsruhe Institute of Technology (Germany)
- Renato Werneck, Amazon.com Inc. (USA)

External Reviewers

Konstantina Mellou, Adrián Gómez Brandón, Alejandro Pacheco, Alessio Conte, Andrea Marino, Antoine Limasset, Carlos Ochoa, Christian Schulz, Daniele Ferone, Daniele Ferone, Daniil Galaktionov, Demian Hespe, Diego Arroyuelo, Diego Diaz, Dustin Cobas, Fritz Bökler, Giulia Bernardini, Guillaume Hanrot, Javiel Rojas-Ledesma, Johannes Blum, Jonas Sauer, Keisuke Goto, Kunihiro Wasa, Lars Gottesbüren, Marcel Radermacher, Marcin Pilipczuk, Michael Rice, Michał Gańczorz, Mohammad Malekzadeh, Moritz Beck, Nicola Prezza, Oded Lachish, Pablo Rotondo, Pascal Ochem, Pierre Peterlongo, Rajeev Raman, Robert Gwadera, Sascha Gritzbach, Tal Wagner, Tim Zeitz, Tobias Zündorf, Valentin Buchhold, Vincent Limouzy.

18th International Symposium on Experimental Algorithms (SEA 2020).
Editors: Simone Faro and Domenico Cantone
Leibniz International Proceedings in Informatics
LIPICS Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany