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Foundational and Practical Aspects of Resource Analysis

4th International Workshop, FOPARA 2015
London, UK, April 11, 2015
Revised Selected Papers

Springer

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Preface

This LNCS volume constitutes the formal proceedings of the 4th Foundational and Practical Aspects of Resource Analysis (FOPARA 2015) Workshop, which was held with the Developments in Implicit Computational Complexity (DICE 2015) Workshop at the European Joint Conferences on Theory and Practice of Software (ETAPS 2015) in London, UK, at the Queen Mary University of London on the Mile End campus.

The bi-annual FOPARA workshop (http://fopara.cs.ru.nl) intends to serve as a forum for presenting original research results that are relevant to the analysis of resource (e.g., time, space, energy) consumption by computer programs. The workshop aims to bring together researchers who work on foundational issues with researchers who focus more on practical results. Therefore, both theoretical and practical contributions are encouraged. Also papers are encouraged that combine theory and practice. Typical topics are:

- Resource static analysis for embedded or/and critical systems
- Logical and machine-independent characterizations of complexity classes
- Logics closely related to complexity classes
- Type systems for controlling/inferring/checking complexity
- Semantic methods to analyze resources, including quasi-interpretations
- Practical applications of resource analysis
- Complexity analysis by term and graph rewriting

FOPARA 2015 was a two-phase workshop. All participants were invited to submit a draft paper describing the work to be presented at the workshop. These submissions were screened by the Program Committee chair to make sure they were within the scope of FOPARA and they appeared in the informal pre-proceedings that were available at the workshop. Submissions appearing in these draft proceedings were not peer-reviewed publications.

After the workshop, via an *open call* the opportunity was given to submit a paper to the formal proceedings, and authors of the draft proceedings including the invited speakers were in particular invited to submit a final paper incorporating the feedback from discussions at the workshop. These revised submissions were reviewed by the Program Committee using prevailing academic standards to select the best articles that will appear in the formal proceedings. The papers selected after the reviewing process are now published in this volume of the Springer LNCS series. The 2009, 2011, and 2013 FOPARA proceedings are published as LNCS Volumes 6324, 7177, and 8552, respectively.

Three FOPARA workshops preceded this event. The first edition of the FOPARA workshop was held in 2009 as part of Formal Methods Europe (FM2009) at the Technical University Eindhoven, The Netherlands. The second edition was co-located with Trends in Functional Programming (TFP2011) at Complutense University in Madrid, Spain. The third FOPARA workshop was co-located with WST 2013, the 13th

International Workshop on Termination, at the Bertinoro International Center for Informatics in Italy:

- FOPARA 2009: Eindhoven at Formal Methods Europe
  - http://resourceanalysis.cs.ru.nl/fopara/
- FOPARA 2011: Madrid at Trends in Functional Programming
  - http://dalila.sip.ucm.es/fopara11/
- FOPARA 2013: Bertinoro at Workshop on Termination
  - http://fopara2013.cs.unibo.it/

The 2015 FOPARA workshop was an inspiring event not only for the FOPARA community but also for the DICE community because the two workshop were co-located with a joint program. This may be a first step toward many future FOPARA-DICE joint program co-locations.

The 2015 edition of FOPARA was supported by the European Union via ICT COST Action IC1202: Timing Analysis on Code LEvel (TACLE).

August 2016

Marko van Eekelen
Ugo Dal Lago

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