

Preface

Reconfigurable computing technologies offer the promise of substantial performance gains over traditional architectures via customizing, even at runtime, the topology of the underlying architecture to match the specific needs of a given application. Contemporary adaptive systems allow for the definition of architectures with functional and storage units that match in function, bit-width, and control structures the specific needs of a given computation. They aim to exploit these novel and innovative resources to achieve the highest possible performance and energy efficiency.

Many are the challenges faced by reconfigurable computing in these days: design methods and tools, which include high-level languages and compilation, simulation and synthesis, estimation techniques, design space exploration, and run-time systems and virtualization; architectures, which may be self-adaptive and evolvable, heterogeneous, low-power, approximate, fine/coarse grained, embedded in an MPSOC and use an NOC, or even resilient and fault tolerant; applications that comprise security and cryptography, big data and HPC, embedded and DSP, robotics and automotive, mission critical, among many others; and trends in teaching, benchmarks, and other emerging technologies.

Over the past 12 years, the International Applied Reconfigurable Computing (ARC) Symposium series (www.arc-symposium.org) has provided a forum for dissemination and discussion of this transformative research area. The ARC symposium was first held in 2005 in Algarve, Portugal. The second edition took place in Delft, The Netherlands, in 2006, and was the first edition to have its proceedings published by Springer as a volume in its *Lecture Notes in Computer Science* series. Subsequent ARC yearly editions were held in Rio de Janeiro, Brazil (2007); London, UK (2008); Karlsruhe, Germany (2009); Bangkok, Thailand (2010); Belfast, UK (2011); Hong Kong, China (2012); Los Angeles, USA (2013); Algarve, Portugal (2014); Bochum, Germany (2015); Rio de Janeiro, Brazil (2016).

This LNCS volume includes the papers selected for the 13th edition of the symposium (ARC 2017), held in Delft, The Netherlands, during April 3–7, 2017. The symposium succeeded in attracting a significant number of high-quality contributions related to reconfigurable computing. A total of 49 papers were submitted to the symposium from 22 countries: Algeria (1), Brazil (5), Canada (1), China (9), Denmark (1), France (3), Germany (7), Greece (1), India (1), Iran(1), Italy(1), Japan (2), South Korea (1), Malaysia (1), The Netherlands (2), Pakistan (1), Poland (2), Singapore (2), Switzerland (1), Turkey (1), UK (4), and USA (1). All submissions were carefully evaluated by at least three members of the Program Committee. In all, 17 papers were accepted as full papers (acceptance rate of 34.7%) and 11 as short papers (global acceptance rate of 57.1%). The accepted papers composed a very interesting symposium program, which we consider to constitute a representative overview of ongoing research efforts in reconfigurable computing.

We would like to acknowledge the support of all the members of this year's Steering and Program Committees in reviewing papers, in helping with the paper selection, and in giving valuable suggestions. Special thanks also to the additional researchers who contributed to the reviewing process, to all the authors who submitted papers to the symposium, and to all the symposium attendees.

Last but not least, we are especially indebted to Juergen Becker from the University of Karlsruhe and to Alfred Hoffmann and Anna Kramer from Springer for their support and work in publishing this book as part of the LNCS series.

February 2017

Stephan Wong
Antonio Carlos Beck
Koen Bertels
Luigi Carro

Applied Reconfigurable Computing

13th International Symposium, ARC 2017, Delft, The Netherlands, April 3-7, 2017, Proceedings

Wong, S.; Beck, A.C.; Bertels, K.; Carro, L. (Eds.)

2017, XX, 332 p. 142 illus., Softcover

ISBN: 978-3-319-56257-5