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# VLSI Design and Test

22nd International Symposium, VDAT 2018  
Madurai, India, June 28–30, 2018  
Revised Selected Papers

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# Preface

VLSI Design and Test (VDAT) is a leading event of the VLSI Society of India. The 22nd symposium in this series, the VLSI Design and Test Symposium (VDAT 2018), was held during June 28–30, 2018, at the Thiagarajar College of Engineering, Madurai, India. The objective of the symposium is to bring together the professional engineers, academics, and researchers from India and abroad to discuss emerging topics of VLSI and related fields on a common platform and to share new ideas, experiences, and knowledge. The chief guest at the event was Dr. Vishwani D. Agrawal, Professor Emeritus, Auburn University, USA.

The scientific program consisted of peer-reviewed paper presentations in two parallel technical sessions. In addition, keynote lectures, presentations by industry professionals, tutorials, a PhD forum, a design contest, and a poster presentation were held during the conference. Research contributions in the following areas were invited for VDAT 2018:

- Digital Design
- Analog and Mixed Signal Design
- Hardware Security
- Micro Bio-fluidics
- VLSI Testing
- Analog Circuits and Devices
- Network-on-Chip
- Memory
- Quantum Computing and NoC
- Sensors and Interfaces

This year we received 231 papers from around the world. After a rigorous review process, the Program Committee selected 39 regular papers and 19 poster papers for the proceedings (the acceptance rate was 25.12%). In all, 150 expert reviewers were involved in rating the papers and on an average each paper received at least three independent reviews. The program of the symposium spanned over three days; the main conference program was preceded by a day of tutorial presentations that had four tutorials delivered by eminent researchers and practitioners in the field. The symposium hosted the following tutorials:

1. Nishit Gupta and Deepak Jharodia, “Taking Reuse to Next Level: Exploiting Transaction Level Modeling (TLM) for Universal Verification Methodology (UVM)”
2. Vijay Kumar Sankaran and Nadeem Husain Tehsildar, “Recent Trends in Modeling and Simulation of Defects in Analog Circuits and Their Applications”
3. Sudeeb Dasgupta, “Tunnel Field Effect Transistors and Reconfigurable Device: A New Paradigm in Emerging Device Technology”
4. Preet Yadav, “IoT Security: The Darker Side of the Cloud”

Several invited talks and keynote speeches were delivered by experts from India and abroad enlightening the participants on various aspects of emerging issues in VLSI research. These talks were delivered by Prof. Vishwani D. Agrawal (Auburn University, USA), Prof. Michiko Inoue (NAIST, Japan), Dr. Neel Gala (RISE Lab., IIT Madras), Mr. Preet Yadhav (NXP Semiconductors, Noida, India), and Dr. Nagi Naganathan (Broadcom, USA). VDAT 2018 was a focused research event encompassing themes related to various disciplines of VLSI.

We sincerely thank all the officials and sponsors for their support in recognizing the value of this conference. We would like to express our thanks to the keynote speakers and the tutorial speakers for kindly agreeing to deliver their lectures. Thanks to the authors and reviewers of all the papers for their quality research work. We heartily thank every member of the Conference Committee for their unyielding support in making this event a success.

July 2018

S. Rajaram  
N. B. Balamurugan  
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