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Hardware and Software: Verification and Testing

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Proceedings

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Preface

This volume contains the proceedings of the 3rd Haifa Verification Conference (HVC 2007), which took place in Haifa during October 2007. HVC is a forum for researchers from both industry and academia to share and advance knowledge in the verification of hardware and software systems.

Academic research in verification is generally divided into two paradigms – formal verification and dynamic verification (testing). Within each paradigm, different algorithms and techniques are used for hardware and software systems. Yet, at their core, all of these techniques aim to achieve the same goal of ensuring the correct functionality of a complicated system. HVC is the only conference that brings together researchers from all four fields, thereby encouraging the migration of methods and ideas between domains.

With this goal in mind we established the HVC Award. This award recognizes a promising contribution to verification published in the last few years. It is aimed at developments that significantly advance the state of the art in verification technology and show potential for future impact on different verification paradigms. The winners of the HVC Award are chosen by an independent committee with experts from all fields of verification – both formal and dynamic, software and hardware. The winners of the 2007 HVC Award were Corina Păsăreanu and Willem Visser, for their work on combining static and dynamic analysis.

This year we received 32 submissions, out of which 15 were accepted after a thorough review conducted by the Program Committee (PC) and additional reviewers. Each paper was reviewed by at least three reviewers, sometimes more. PC members who submitted papers were not involved in any way in the review, discussion, or decision regarding their paper. The chosen papers were presented during the 3-day conference, along with keynote and invited presentations. These proceedings include reviewed papers as well as the extended abstracts of invited talks. In addition, we held a full-day tutorial titled: "Verification 101—The Basics of Hardware Verification and Software Testing." The tutorial was designed for non-experts who want to know what verification is all about and for people with knowledge in one aspect of verification (e.g., software testing) who wanted to become familiar with other aspects (e.g., formal verification). The goal was to supply the non-expert with the tools needed to better understand the talks that were later presented at the conference. The tutorial was hosted by our sponsor, the Caesarea Rothschild Institute (CRI) at the University of Haifa.

Attendance at the conference was very high, with more than 250 participants from 12 countries (Austria, Canada, Czech Republic, France, Germany, India, Israel, The Netherlands, Russia, Switzerland, UK, and USA). Thanks to sponsorship from Cadence Israel, we were able to offer student travel grants, thus enabling PhD students to travel to the conference to present their work.

I would like to thank the Organizing Committee, the HVC Award Committee, the Program Committee, and the authors of all submitted papers for their contribution to the high quality of this year's event. Thank you to the invited speakers who travelled from afar and made the conference that much more interesting: Bob Bentley, Aarti Gupta, Alan Hu, Bob Kurshan, Corina Păsăreanu, Wolfgang Roesner, and Andreas Zeller. Many thanks to Avi Ziv, Cindy Eisner, and Shmuel Ur for the excellent tutorial. Special thanks to Vered Aharon for doing an excellent job with the logistics of the conference and to all the people at IBM who put in time and energy to make this event a success: Tamar Dekel, Ephrat Elgarisi, Ruth Elnekave, Ettie Gilead, Yair Harry, Yael Hay-Karesenty, Chani Sacharen. Last but not least, I would like to thank our generous sponsors, and especially Amos Ziv from Cadence Israel and Martin Golumbic from CRI for all their help.

October 2007 Karen Yorav

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