

Tutorial: Recent Advances in Verification, Equivalence Checking & SAT-Solvers

Speakers

Dhiraj Pradhan

Department of Computer Science, University of Bristol
Bristol, BS8 1UB, UK

Magdy Abadir, Motorola, USA

Mauricio Varea, University of Southampton, UK

Design flow, RTL-verification, Simulation-based techniques, basic concepts of equivalence checking, combinational equivalence checking, ATPG-based techniques, compare point matching, mitering, don't cares, solver overview (structural verification, BDD-based solvers, SAT-based solvers), Decision Diagrams (BDDs, zBDDs, word-level DDs). Also to be covered are Concepts in SAT solvers (backtrack-search algorithm, effective techniques, including non-chronological backtracking & Boolean constraint propagation), new EDA-related techniques (covering immediate implications, partial-clauses, local decisions & partial clauses). Finally, the Tutorial will give an overview of various commercially available tools, & their applicability. Also to be discussed are future challenges, such as design for verifiability & potential new directions.

***Professor Pradhan** currently holds a Chair in Computer Science at the University of Bristol (U.K.). Recently, he had been Professor of Electrical and Computer Engineering Department at Oregon State University, Corvallis. Previous to this, Dr. Pradhan had held the COE Endowed Chair Professorship in Computer Science at Texas A&M University, College Station, also serving as Visiting Professor at Stanford University (Calif.). The holder of two patents, Dr. Pradhan has also served as co-author and editor of various books. A Fellow of both ACM and IEEE, Professor Pradhan is also the holder of a Humboldt Prize, Germany. In 1997, Dr. Pradhan was also awarded the '97-'98 Fulbright-Flad Chair in Computer Science.*

***Dr. Abadir** is with Motorola, as General Manager of the high performance tools and methodology, in the Advanced System and Platform group, at Austin, Texas. Before that, he was General Manager of Best IC Labs (a burn-in and test engineering services firm), also Austin-based. Between 1986 and 1994, Dr. Abadir was with Microelectronics and Computer Technology Corporation (MCC), where he ultimately served as Senior technical staff member. Additionally, he works as an Adjunct faculty of Computer Engineering at the University of Texas, Austin.*

***Dr. Mauricio Varea** is a researcher at the University of Southampton, UK. He received his Ph.D. in Electronics and Computer Science from the University of Southampton, UK, in 2003. He has taught Microelectronics in M.Sc. courses and C/C++ at undergraduate level. Dr. Varea has co-authored several technical publications as well as is a referee for top journals and conferences in the field. In 2001, he was a visiting researcher in the Embedded Systems Laboratory, Linkoping, Sweden. He is chairing a session for Systems, Man and Cybernetics-2004 His research interests comprise several aspects of the boundary between hardware and software, both at the high and low level.*