Report on the SAT 2007 Conference on Theory and Applications of Satisfiability Testing

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■ The SAT Conference on Theory and Applications of Satisfiability Testing was held in Lisbon, Portugal, 28–31 May 2007. The conference, which attracted a record-breaking 80 participants, featured 34 papers and two invited presentations. The venue also included the SAT competition, the QBF evaluation, the PB evaluation, and the MAX-SAT evaluation.

Propositional satisfiability (SAT) was the first decision problem to be shown nondeterministic polynomial (NP) complete and has been the subject of remarkable theoretical work over the years. Moreover, SAT and extensions of SAT find many practical applications, including planning, software and hardware model checking, bioinformatics, equivalence checking, test-pattern generation, software package installation, and cryptography.

The annual SAT conference is now widely recognized as "the venue" for publishing the latest advances in SAT research. This year marked the tenth SAT meeting. The conference was held in Lisbon, Portugal, from May 28 through May 31, 2007.

The area of SAT is interpreted in a broad sense to include not just propositional satisfiability, but also pseudo-Boolean (PB) constraint solving and optimization, quantified Boolean formulae (QBF), constraint programming (CP) techniques for word-level problems and their propositional encoding, and satisfiability modulo theories (SMT). Submissions were solicited for original research on proof systems and proof complexity, search algorithms and heuristics, analysis of algorithms, hard instances, randomized formulae, problem encodings, industrial applications, solvers, simplifiers and tools, case studies and empirical results.

The conference attracted 80 participants, from academe and industry—attendance that made the 2007 meeting one of the largest SAT conferences in terms of attendance. The conference included a comprehensive social program to stimulate communication and exchange of ideas among conference participants.

A total of 34 papers were presented at the conference, representing 22 regular papers (14 pages, 25-minute presentation) and 12 short papers (6 pages, 12-minute presentation). The accepted papers were organized into nine sessions, and their full text was included in the proceedings. The conference program also featured two invited presentations. The first, by Martin Davis, professor emeritus at New York University, USA, chronicled the original development of the Davis-Putnam-Loveland-Logemann (DPLL) algorithm and proposed an unorthodox take on the P = NP problem. The second, by Andrei Voronkov, professor at the University of Manchester, UK, addressed new encodings that enable succinct representations of certain combinatorial problems in the Bernays-Schonfinkel fragment of first-order logic.

A number of additional events were associated with the SAT conference, including the well-known SAT competition, the QBF evaluation, the PB evaluation, and the MAX-SAT evaluation.

A poster session took place at the last day of the conference, permitting the results from solver competitions and evaluations, and also allowing some papers to provide additional detail of their contribution. To further stimulate the development of solver technology in the area of SAT, the SAT 2007 conference organized a special session on SAT solving. Armin Biere, professor at the Johannes Kepler University, Linz, Austria, was the invited speaker for this special session, having addressed design and implementation issues in modern SAT solvers. The special session also included a panel discussion on the development of modern SAT solvers. The panelists included the authors of some of the best performing SAT solvers in different categories, Armin Biere, Marijn Heule, and Knot Pipatsrisawat.

The conference website[1] contains additional information regarding the conference, including the slides of all talks.

The next International Conference on Theory and Applications of Satisfiability Testing will be held in Guangzhou, China, 12–15 May 2008.

Figure 1. The SAT Conference Was Held in Lisbon, Portugal.

Note

1. See sat07.ecs. soton.ac.uk

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