This special issue of IJFCS contains selected papers from ATVA 2007, the 5th *International Symposium on Automated Technology for Verification and Analysis*, which was held October 22-25, 2007 in Tokyo, Japan. The papers showcase both the depth and the reach of verification techniques: the areas covered include satisfiability checking, Petri Nets, circuit simulation, asynchronous specification methods, and the analysis of continuous systems. We give below a short description of the main contributions of each paper.

Geng-Dian Huang and Bow-Yaw Yang present a complete SAT-based algorithm for checking the universal fragment of alternation-free mu-calculus formulas on context-free processes. Gilles Geeraerts, Jean-François Raskin, and Laurent Van Begin point out a flaw in the "minimal coverability algorithm" for Petri nets–originally an optimization of the classical Karp-Miller procedure–and present a new method which avoids the flaw and is more efficient in practice than the Karp and Miller solution. Orna Kupferman and Yoad Lustig introduce and study an extension of simulation relations and games to a multi-valued setting, which results in an generalization of earlier results to a lattice-based model. Scott Little, David Walter, Kevin Jones, Chris Myers, and Alper Sen develop a method to generate a conservative formal model from a set of simulation traces and thresholds on the state space. The generated model can be analyzed by model checking techniques to prove safety properties about the original model. Message Sequence Charts (MSCs) are a well-known, standard notation for specifying asynchronous protocol behavior. Edith Elkind, Blaise Genest, Doron Peled, and Paola Spoletini introduce the concept of discord to quantify potential discrepancies between informal intuition and the formal semantics of message ordering in an MSC-graph, and study its algorithmic properties. Laura Recalde, Serge Haddad, and Manuel Silva study the decidability and the complexity of several problems on continuous Petri net models. We were shocked and saddened to hear of Laura Recalde's untimely demise, she passed away towards the end of 2008. Laura was well respected in the field for her research, and she was admired personally for the tenacity and integrity with which she faced difficult life circumstances.

We would like to thank many people for whose help we are very grateful. The ATVA steering committee and Prof. Oscar Ibarra, the editor-in-chief of this journal, suggested the special issue, and helped us through the process. The program committee for ATVA 2007 guided the selection of the papers for this issue. The referees have invested considerable time and energy into providing detailed reviews and suggestions. We thank them all. We hope that you will find much that is of interest in this volume.

Sincerely,

Kedar Namjoshi and Tomohiro Yoneda (guest editors)