Foreword

This volume contains the *Proceedings* of the First Workshop on Runtime Verification (RV'2001). The Workshop was held in Paris, France on 23 July 2001, as a satellite event to CAV'2001.

The objective of RV'01 is to bring scientists from both academia and industry together to debate on how to monitor, analyze and guide the execution of programs. The ultimate longer term goal is to investigate whether the use of lightweight formal methods applied during the execution of programs is a viable complement to the current heavyweight methods proving programs correct always before their execution, such as model checking and theorem proving. Dynamic program monitoring and analysis can occur during testing or during operation. The subject covers several technical fields as outlined below.

Dynamic Program Analysis. Techniques that gather information during program execution and use it to conclude properties about the program, either during test or in operation. Algorithms for detecting multi-threading errors in execution traces, such as deadlocks and data races.

Specification Languages and Logics. Formal methods scientists have investigated logics and developed technologies that are suitable for model checking and theorem proving, but monitoring can reveal new observation-based foundational logics.

Program Instrumentation. Techniques for instrumenting programs, at the source code or object code/byte code level, to emit relevant events to an observer.

Program Guidance. Techniques for guiding the behavior of a program once its specification is violated. This ranges from standard exceptions to advanced planning. Guidance can also be used during testing to expose errors.

Both foundational and practical aspects of dynamic monitoring were encouraged.

The papers in this volume were reviewed by the program committee consisting, besides editors, of

- Saddek Bensalem, (VERIMAG Laboratory¡/em¿)
- Rance Cleaveland, (State University of New York at Stony Brook)
- Michael Ernst, (Massachusetts Institute of Technology)
- Patrice Godefroid, (Bell Laboratories)
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23 July 2001 *Klaus Havelund, Grigore Roşu*

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