Fifth International Workshop on Formal Methods for Parallel Programming: Theory and Applications FMPPTA'2000

5 May 2000

Program and Organizing Chair's Message

It is our pleasure to welcome you to the Fifth International Workshop on Formal Methods for Parallel Programming: Theory and Applications, FMPPTA'2000. This message pays tribute to the many people who have contributed their time and effort in organizing this meeting and reviewing papers.

We are thankful to the IPDPS'2000 committee for accepting the organization of the workshop in cooperation with IPDPS'2000, and especially Viktor K. Prasanna, Mani Chandy and Jose Rolim.

We also would like to thank the authors of all submitted papers, the presenters of accepted papers, the session chairs, the invited speakers and the program committee members.

We hope that every participant will enjoy the workshop.

Beverly Sanders, Universiy of Florida,
and
Dominique Méry, Université Henri Poincaré Nancy 1
January 2000

Foreword

The program of FMPPTA'2000 remains focused on the applications of formal methods, particularly for problems involving parallelism and distribution. Seven papers, four contributed and three invited, will be presented, most illustrating the use of techniques that are based on formal concepts and supported by tools. In addition, the workshop will include two tutorials to show how formal techniques can be useful and effective for developing realistic parallel and distributed solutions, for example in telecommunications applications where guaranteeing safety properties, in particular, seems to require the use of formal techniques.

In the first contributed paper, Turner, Argul-Marin, and Laing present the ANISEED method for specifying and analyzing timing characteristics of hardware designs using SDL. Digital hardware is treated as a collection of interacting parallel components. SDL provides a way to validate and to verify digital hardware components. Timing constraints can be studied through SDL specifications.

Non-functional requirements are very important aspects of practical systems. The paper of Rosa, Justo and Cunha presents an approach in which transactional and other non-functional requirements are formally incorporated into a special class of software architectures, namely dynamic software architectures. The ZCL framework based on the Z notation is a formal framework which formally incorporates elements of the CL model, a configuration model.

Refinement is a process for developing solutions that satisfy the initial formal specification. In the paper by Filali et. al. refinement is used in a to develop and validate The use of UNITY as the development formalism is made easier by the use of PVS, a proof assistant. This work presents a non-trivial case study illustrating the use of a formal method together with mechanized support.

Branco, et. al describe their tool Draco-PUC, which automatically generates an implementation in Java for a distributed system described using their formal description technique MONDEL. This approach allows systems to be designed an analyzed at a higher level of abstraction than the implementation language.

The invited presentations will be given by Ganesh Gopalkrishnan, Jean Goubault-Larrecq and Michael Mislove. They will address foundations and applications of formal methods. Ganesh Gopalakrishnan will

present verification methods for weak shared memory consistency models; Jean Goubault-Larrecq will address the automatic verification of cryptographic protocols and Michael Mislove will describe the problems encountered in building a semantic model that supports both nondeterministic choice and probabilistic choice.

Two tutorials are summarized by the two abstracts included in the proceedings of the workshop. These are *The Design of Distributed Programs Using the B-Method* by Dominique Cansell, Dominique Méry and Christophe Tabacznyj, and *A Foundation for Composing Concurrent Objects* by Jean-Paul Bahsoun.

We hope that you will enjoy talks and papers.

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Programme committee

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