Information Society
Technologies

ARTIST2 – Year 1 Review

Grenoble, October 3rd-4th, 2005

Activity   *NoE Integration*

Quantitative Testing & Verification

Activity leader : Ed Brinksma (UT)

Schedule & Milestone A

Foundation for black-box testing of real-time systems established

T0+6:

a. Soundness and limit-completeness

This goal has been achieved:

RT testing theories, together with implementations in extensions of the Uppaal, IF and TorX tools, have been realized.

Some final work on limit-completeness in the presence of observable quiescence is in the course of being completed.

b. Metrics for coverage.

This work has started, but is complicated and will need more time to obtain mature results

Schedule & Milestone B

Improved tools for quantitative analysis with experimental evaluation

T0+6:

a. Improved symbolic datastructures

This goal has been achieved.

RT verification and simulation tools have been enhanced with (multiple) cost functions that allow for cost-guided search techniques, and the identification of optimal, worst and best case system behaviour.

They have been evaluated in a number of case studies.

Schedule & Milestone C

Industrial case studies.

T0+6:

Collection of case studies on web.

This is ongoing work: some 10+ case studies have been identified, but are not yet available on the web.

For security-related cases a start has been made.

Work Planned for the next 18 months

Robustness and implementation of RT models (new).
This is considered more urgent than the "Computability and complexity of learnability " that was originally planned

Abstraction methods (ongoing)

Comparison with (MI)LP and OR (ongoing)

Classification of case studies (ongoing)

Stochastic model checking (new)
Integration of verification, performance & reliability analysis

Controller synthesis (new)
Integration of formal methods, game theory & control theory

Significant Events/Achievements

The quantitative testing and verification activity spawned the IST FP6 STREP proposal on "Quantitative methods for model-driven design of embedded System" (QeS)

- ➢ industrial partners: FOSS A/S (DK), Robert Bosch Gmbh (D), CRIL Technology (F)

- ➢ Embedded Systems Research Institutes: CISS, ESI

- ➢ ARTIST2 Cluster partners: Aalborg, Uppsala, Twente, IRISA, LSV, CFV, Verimag

- ➢ ARTIST2 Associate Partners: Nijmegen, Brno

- ➢ ARTIST2 Non-cluster partners: Aachen, Saarland