ARTIST

ARTIST International Collaboration Days

October 10th, 2003
Philadelphia

Technical Coordinator
Bruno Bouyssounouse

ARTIST International Collaboration Days: Education

Opening Remarks

ARTIST IST-2001-34820

Jointly organized with the University of Pennsylvania

http://www.artist-embedded.org/Education/

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ARTIST – Overall Objectives

Our overall objective is to coordinate the R&D effort in the area of Embedded Systems Design :

- Improve awareness of academics and industry in the area, especially about existing innovative results and technologies, standards and regulations.
- Define innovative and relevant work directions, identify obstacles to scientific and technological progress and propose adequate strategies for circumventing them.

The explicitly chosen ambition for Artist as a whole is extension in the 6th IST Framework Programme, to become the Network of Excellence in Embedded Software and Systems.

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ARTIST Aims

Roadmapping

- State of the Art, State of the Practice
- Assessment of strengths and weaknesses, opportunities for Europe
- Work directions
- Industrial Liaison – Triggering Integrated Projects

Education and Training

- Propose curricula on Embedded Software and Systems in European universities, according to industrial needs

International Collaboration

- Establish links with relevant teams and projects in the USA

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ARTIST Current Actions

Action 1. **Hard Real-Time Systems**
Consolidate and further improve a strong European competence and know-how that is strategic for safety or mission critical applications (Synchronous languages-TTA- Fixed priority scheduling).

Action 2. **Component-based Design and Development**
Transfer, enhance interaction between teams working on compositionality / composability problems and software and systems engineering teams involved in the definition of standards e.g. UML, ADL.

Action 3. **Adaptive Real-Time Systems for Quality of Service (QoS) Management**
Soft real-time approaches and technology for telecommunications, large open systems and networks Teams with expertise in real-time operating systems and middleware.

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International Collaboration Objectives

- A world-level view of relevant R&D activities in Embedded Systems
- Increase Awareness for Research and Industry
  - Through events
    - *Technical Meetings (Europe and USA)*
    - *International Collaboration Days*
    - *Conferences (EmSoft)*
  - Through Working Groups (eg: Timing Analysis - Working Group)
- Relevant and challenging problems
  - Identification
  - Focus research efforts

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Work on Education

Investigate whether embedded systems is adequately taught and whether current education meets industrial and research needs.

Three actions:

- Elaborate a questionnaire on the industrial relevance of an embedded systems curriculum,
- Survey existing courses and curricula, with a focus on Europe and the USA,
- Propose guidelines for a graduate level curriculum in the area (report available :
  http://www.artist-embedded.org/Education/,
  and presentation by Paul Caspi).

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Expected Results

The day's discussions should yield some concrete results:

- Consensus on the need for an integrated curriculum;
- Identification of existing obstacles for implementation;
- An international collaboration workplan for implementing an integrated embedded systems curriculum, in the form of:

  - Defined course materials (courseware) for an embedded systems curriculum, to be made available to educators.
  - International Graduate Studies programs in embedded systems
  - Summer schools and seminars