



## June 2005 Issue

**TC-ECBS newsletter** is produced as a focal point for news concerning the (related) activities of the IEEE Computer Society Engineering of Computer-Based Systems technical committee. If you have any items for the next issue please contact [ecbs-news@computer.org](mailto:ecbs-news@computer.org).

## ECBS 2005

The **12th Annual ECBS** was held as part of the 1st Systems and Software Week in Greenbelt, Maryland April 2005. The week also included NASA's Software Engineering Workshop.

**Call for Participation**  
**Systems and Software Week**  
3-8 April 2005  
Greenbelt Marriott Hotel, Greenbelt, MD (Washington DC metro)

**ECBS 2005**  
12th Annual IEEE International Conference on Engineering Computer-Based Systems  
<http://sdl.gsfc.nasa.gov/ECBS2005>  
4-5 April

**SEW-29**  
29th NASA/IEEE Software Engineering Workshop  
<http://sdl.gsfc.nasa.gov/SEW-29>  
6-7 April

**Tutorials**  
<http://sdl.gsfc.nasa.gov/Tutorials2005>  
3 April and 8 April

**Register Online:**  
<http://sdl.gsfc.nasa.gov/SystemsAndSoftware/register>

**ECBS Workshops**

**EASe 2005**  
2nd IEEE Workshop on Engineering of Autonomic Systems  
<http://www.udel.ac.uk/ease>  
6 April

**MBD 2005**  
3rd IEEE Workshop on Model-Based Development of Computer-Based Systems  
<http://sdl.gsfc.nasa.gov/mbd2005>  
6 April

**FSCBS 2005**  
6th IEEE/IEEP Joint Workshop on Formal Specifications of Computer-Based Systems  
<http://sdl.gsfc.nasa.gov/fscbs2005>  
7 April

**NASA**  
**IEEE**  
**Computer Society**

The program included 66 papers presented from 18 countries (Australia, Canada, China, Czech Republic, England, Finland, Germany, Iceland, Iran, Ireland, Northern Ireland, Portugal, Scotland, Serbia, Spain, Switzerland, United Arab Emirates, USA). The topics focused on important issues within Engineering of Computer-Based Systems (ECBS), namely; Architecture; Component-Based System Design; Reliability, Dependability, and Security; Embedded Systems; Requirements Engineering; Networks and Sensors; Design and System Synthesis; Model-based System Development; Formal Methods; Life-cycle and Project Management; High Autonomy Systems.

<http://csdl.computer.org/comp/proceedings/ecbs/2005/2308/00/2308toc.htm>

Workshops at this year's conference included: the 6th Joint Workshop on Formal Specification of Computer Based Systems (FSCBS 2005), the 3rd Workshop and Session on Model-based Development of Computer Based Systems (MBD 2005) and the 2nd Workshop on Engineering of Autonomic Systems (EASe 2005).

## EASe Workshop @ ECBS'05



Bryon Purves chairing a session in the EASe workshop @ ECBS'05

The 2nd Workshop on Engineering of Autonomic Systems had 12 papers and a birds of a feather session on Autonomic Computing - Panacea or Popycock?  
[www.infj.ulst.ac.uk/~ease/ease-2005/](http://www.infj.ulst.ac.uk/~ease/ease-2005/)

Since last years workshop in Brno a special issue of IEEE Transactions Systems Man and Cybernetics-C on the Engineering of Autonomic Systems is in preparation.  
[www.infj.ulst.ac.uk/~ease/smc/](http://www.infj.ulst.ac.uk/~ease/smc/)

## MBD Workshop @ ECBS'05

The 3rd Workshop and Session on Model-based Development of Computer Based Systems focused on discussing methods to combine Systems Engineering and Software Engineering MBD approaches, techniques and models.

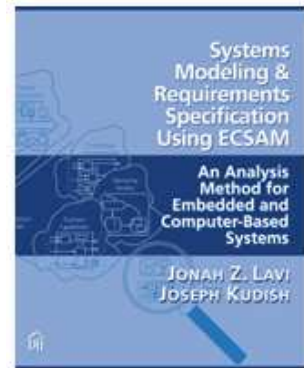
## Activities @ ECBS 2005

The social program included conference dinner at George Washington's home - Mt. Vernon, a walking tour of DC at night and a tour of NASA's Goddard Space Flight Center.



Bernard fulfilling a dream (NASA tour) following his presentation on MBDs at the conference.

## NEW BOOK



**ECBS senior fellow Jonah Lavi** has recently published a book "Systems Modeling & Requirements Specification Using ECSAM" which provides an analysis method for embedded and computer-based systems. The book is backed with industrial practice in using the methods since 1980.  
[www.dorsethouse.com/books/smars.html](http://www.dorsethouse.com/books/smars.html)

The ECSAM method guides engineers in modeling operational, functional, and design requirements, considering both static and dynamic aspects of systems. With an end-to-end example of the method developed throughout the book.

The book is aimed at those involved in the development of complex or mission-critical computer-based systems and their software, systems engineers, computer-based-systems engineers, software engineers, engineering managers, and students at undergraduate and graduate levels.

## Your TC-ECBS EXCOM Contacts

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## Join TC ECBS

If you have not already done so, you are invited to join online the IEEE Computer Society Engineering of Computer-Based Systems Technical Committee.

Details can be found at the web site <http://www.computer.org/tab/> were you can sign-up to TC-ECBS and four others free <http://www.computer.org/TCsignup/index.htm>



## First Call for Papers :: ECBS 2006

### Mastering the Complexity of Computer-Based Systems

The 13th Annual ECBS will be held in Germany at the Hasso-Plattner-Institute for Software Systems Engineering at the University of Potsdam, Potsdam, Germany (Berlin metropolitan area) during March 27th-30th, 2006.

The first call for papers is available at <http://ecbs06.hpi.uni-potsdam.de/> with important dates:

|                   |   |
|-------------------|---|
| 01 June, 2005     | Proposals for additional workshops (including the related Call for Papers) due: |
| 12 June, 2005     | Notification:   |
| 15 October, 2005  | Submission of full papers due:  |
| 15 October, 2005  | Submission of doctoral symposium papers due:                                    |
| 15 October, 2005  | Submission of poster abstracts due:   |
| 15 October, 2005  | Submission of industrial track papers due:                                      |
| 02 December, 2005 | Notification:   |
| 06 January, 2006  | Camera-ready version due (for accepted papers):                                 |

**CONFERENCE AND WORKSHOPS:** ECBS 2006 will be the 13th formal IEEE sponsored meeting dedicated to formulating and advancing methods, techniques and tools for the engineering of computer-based systems.

This emerging discipline is devoted to the design, development, deployment, and analysis of complex systems whose behavior is largely determined or controlled by computers. CBSs are characterized by functional, performance, and reliability requirements that mandate the tight integration of information processing and physical processes. ECBS encompasses many facets: system modeling, requirements specification, simulation, architectures, communications, safety, security, reliability, software, hardware, human computer interfacing, system integration, verification and validation and project management.

ECBS is the integration of several engineering disciplines including software, hardware, and communications into a complete engineering discipline. The conference provides a bridge between industry and academia; the program will provide a balanced view of academic research and industrial developments. Contributions are sought in two major categories: fundamental ECBS technologies

and reports of practical ECBS solutions in application domain areas.

### SCOPE:

Papers are sought which reflect this theme in fundamental ECBS technologies, or application domains, as listed below.

- O Adaptive Computing
- O Architectures
- O Autonomic Systems
- O Codesign
- O Component-Based System Design
- O Design Evolution
- O Distributed Systems Design
- O ECBS Infrastructure (Tools, Environments)
- O Education & Training
- O Embedded RealTime Software Systems
- O Formal Methods
- O Lifecycle Processes and Process Evolution
- O Integration Engineering
- O Model-Based System Development
- O Modeling & Analysis of Complex Systems
- O Open Systems
- O Product-Families Models and Architectures
- O Reengineering & Reuse
- O Reliability, Safety, Dependability, Security
- O Requirements Elicitation and Analysis
- O Standards
- O System on a Chip
- O System Assessment, Testing and Metrics
- O Verification & Validation

Reports of practical solutions, trends and new system characteristics for ECBSs may include application domains such as: Aerospace Systems, Command and Control, Continuous and Discrete Manufacturing, Environmental Systems, Instrumentation and Control Applications, Internet Technology and Applications, Intelligent Highway-Vehicle Systems (IHVS), Medical Systems, Telecommunication.

### WORKSHOPS:

ECBS 2006 will feature a range of workshops, including the following

1. Engineering of Autonomic Systems (EASe), see <http://www.ulster.ac.uk/ease>
2. Formal Methods
3. Model-Based Development of Computer-Based Systems, see <http://www.proinf.de/mbd>

**PANEL DISCUSSIONS:** ECBS2006 will contain Panel discussions on current ECBS topics. Proposals for panels are invited.

**POSTER SESSIONS:** Posters and abstracts presenting work in progress are invited for a poster session. Accepted abstracts will be published in the proceedings. Graduate students are especially welcome to participate.

**DOCTORAL SYMPOSIUM:** The Doctoral Symposium provides a forum for PhD candidates to present work in progress and get feedback from the research community.

**INDUSTRIAL TRACK:** The industrial track provides a forum for short papers on results of industrial research and development.

### PLANNED INDUSTRIAL TRACK @ ECBS 2006

According to a 2002 analysis of World Semiconductor Trade Statistics, a non-profit organization composed of semiconductor company representatives, PC processors only account for 2 percent of all processor sales. According to upcoming study RG-229 Future of Embedded Systems Technologies by Business Communications Co., Inc, the market for embedded systems is expected to grow at an average annual growth rate of 13% over the period, rising from \$32 billion in 1998 to nearly \$67 billion in 2004.

Research studies, like the Road-map of the ARTIST group, suggest that for successfully mastering the complexity in the area of embedded systems a shift from single-technology research to the broader perspective of systems design is needed, requiring the integration of different viewpoints and domains. The IEEE Engineering of Computer-Based Systems Technical Committee has addressed advances in systems-engineering in annual conferences since its formation with particular emphasis since 1999.

Due to the increasing economic importance of systems engineering, the ECBS'06 Program Chairs seek a closer cooperation between industry and academia, on national and international level. To that end, the ECBS 2006 conference to be held in Potsdam, Germany, features a special track on industrial research and development, to facilitate the exchange of experiences and ideas between industry and academia. This track is especially tailored to system engineers from industry who are interested in discussing their experiences and needs with other industrial participants, addressing open issues in systems engineering, and learning about new research trends in academia and industry.

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