Formalizing and Automating the Software Process

The theme *Formalizing and Automating the Software Process* identifies the two essential activities for realizing the potential of Software Engineering. The first is to rigorously define software creation and evolution processes. The second is to create organizational and automated systems supporting these processes. This theme has guided the definition of a Technical Program organized into Process, Formalism and Automation Tracks, a Tutorial Program providing background information, and a Tools Fair in which a variety of available technology will be demonstrated.

Each of the tracks in the Technical Program includes major talks, papers, workshop reports and panels that collectively expose and integrate relevant, current activities. The Process Track concerns approaches to defining, measuring, assessing, modifying and evolving software processes. Automated and organizational systems supporting these processes are the subject of the Automation Track. The Formalism Track covers both the use of formalism within the processes and the rigorous definition of the processes, their constituent activities and the supporting organizational and automated systems.

The Tutorial Program precedes the other activities and provides in-depth, one-day introductions to a variety of technology pertinent to formalizing and automating the software process. The program covers database technology supporting software engineering, software development environments, knowledge-based programming environments, formal specification and verification techniques, and software reusability.

The Tools Fair includes demonstrations of both production and prototype tools. It also includes in-depth, technical presentations covering particularly interesting and innovative tools. The Tools Fair parallels the Technical Program and its activities are scheduled to allow attendance at both activities.

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*Software Productivity Consortium*

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Software Engineering Institute
Jack C. Wileden
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Institute of Electrical and Electronics Engineers, Inc.
Association for Computing Machinery

Association Francaise pour la Cybernetique Economique et Technique

The Fellowship of Engineering, United Kingdom
Information Processing Association of Israel
Israel Section of the IEEE

Singapore Computer Society
Singapore National Computer Board
Software Engineers Association of Japan

British Computer Society
TOOLS FAIR

31 March - 2 April 1987

The Tools Fair runs parallel to the Technical Program, scheduled to allow attendance at both activities. The purpose of the Tools Fair is to provide conference attendees an opportunity to view a variety of production and prototype software development tools, toolsets and environments from both the research community and industry.

Individual tools, integrated toolsets and full-scale environments will be demonstrated in an exhibition area, providing the opportunity to gain first-hand experience and informally discuss technical details. In addition, a sequence of special presentations will be devoted to the description and demonstration of the technical details of particularly interesting or innovative technology.

Applications for space within the exhibition area and proposals for special presentations must be received by 30 January 1987. Presentation proposals will be judged on the depth of technical content, freedom from marketing "hype," and suitability for illustrating interesting and novel aspects. Applicants for space in the exhibition area are advised that marketing activity will not be allowed.

To request exhibition space or propose a special presentation, contact either of the Tools Fair Chairs:

Larry E. Druffel (412) 268 7740
Jack C. Wileden (413) 545 0289

TUTORIALS

30 March 1987

The Tutorial Program includes several in-depth, one-day introductions to a variety of technology pertinent to formalizing and automating the software process:

Database Technology for Software Engineering
John Nestor
Software Engineering Institute
Richard Snodgrass
University of North Carolina, Chapel Hill

Software Development Environments
Peter B. Henderson
State University of New York at Stony Brook
Mark Ardis
Wang Institute

Formal Specification and Verification
Richard A. Kemmerer
University of California, Santa Barbara

Knowledge-based Programming Environments
David R. Barstow
Schlumberger-Doll Research

Software Reusability
John B. Goodenough
Software Engineering Institute
### TUESDAY, MARCH 31

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**Understanding & Assessing The Software Process**
W. Curtis  
M. Dowson  
W. Humphrey

**Measuring & Modeling the Software Process**
*Paper No. P1*  
*Paper No. P2*
Discussants:
H. Mills & J. Musa

**Empirical Studies of the Software Process**
W. Curtis  
H. Krasner  
E. Soloway  
J. Tang

**More Formal Specification Languages**
*Paper No. F4*  
*Paper No. F5*  
*Paper No. F6*

**Intelligence In User Interfaces: Is It Necessary?**
W. Curtis  
B. Grosz  
R. Perrault

**Supporting Version Control**
*Paper No. A1*  
*Paper No. A2*

### WEDNESDAY, APRIL 1

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**The Use of Formalisms In Software Development:**
Programs & Meta-Programs  
D. Bjorner  
H. Gallaire

**Processes For Achieving Dependable Software**
W. Howden  
N. Levenson  
M. Teramoto

**Database Technology & Software Technology**
P. Bernstein  
R. Fairley  
N. Goldman  
S. Horowitz  
R. Lorie

**Some Existing Software Process Models**
*Paper No. P3*  
*Paper No. P4*  
*Paper No. P5*

**State-of-the-Art In Transformation Technology**
D. Bjorner  
M. Feather  
W. Scherlis

**Automating the Software Process**
V. Stenning  
E. Kant  
W. Royce

**Artificial Intelligence & Software Engineering**
D. Barstow  
B. Boehm  
J. Mylopoulos  
C. Williams

**User Interface Support**
*Paper No. A3*  
*Paper No. A4*
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<td>Software Process Assessments and Improvements</td>
<td>Paper No. P6</td>
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<td>9:00</td>
<td>Puttin Formal Specifications to Everyday Use</td>
<td>D. Goode, J. Horning, P. Zave</td>
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<td>Sampling of Existing Environments</td>
<td>F. Belz, M. Dowson, B. Ford, Y. Matsumoto, L. Osterweil, N. Weideman</td>
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<td>Prospects for Future Environments</td>
<td>T. Cheatham, R. Taylor, C. Tully, T. Yokoi</td>
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<td>Support For Evolution &amp; Reuse</td>
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<td>Approaches to Improving Software Processes</td>
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<td>Individual and International Property Rights: How Serious is the Problem?</td>
<td>R. Banin, M. Borrus, D. Brandin, G. Davis, C. Prestowitz, P. Samuelson</td>
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**Legend of Paper Numbers:**

- **P1** Modeling Software Failures & Reliability Growth During System Testing: T. Emerson, W. Ehrlich
- **P2** Software Metrics Using Deviation Value: Y. Miyazaki, N. Murakami
- **P3** An Architecture for Intelligent Assistance in Software Development: P. Feiler, G. Kaiser
- **P4** SOFTWARE EVOLUTION MANAGEMENT: An Integrated Discipline for Managing Software: D. Schwartz
- **P5** INTERFORM: A CAD System for Program Development: D. Serbanati
- **P6** A Comparison of Four Design Methods for Real-Time Systems: J. Kelly
- **P7** Knowledge-Based Software Design Using Design Schemas: M. Lubars, M. Harandi
- **P8** Use of Software Engineering Tools in Japan: T. Nomura
- **P9** A System for Parallel Programming: K. Schwan, R. Ramnath, S. Vasudevan, D. Ogle
- **P10** Tailoring the Software Process to Project Goals and Environments: V. Basili, H. Rombach

- **F1** An Experiment in Technology Transfer: PAISLEY Specification of Requirements for an Undersea Lightwave Cable System: E. Berliner, P. Zave
- **F2** Parameterized Programming in OBJ2: K. Futatsugi, J. Goguen, J. Meseguer, K. Okada
- **F3** SEGRAS - A Formal Language combining Petri Nets and Abstract Data Types for Specifying Distributed Systems: B. Kramer
- **F4** Specification of Time Dependencies and Synthesis of Concurrent Processes: P. Ladkin
- **F5** Software Interconnection Models: D. Perry
- **F6** Specifying Software/Hardware Interactions in Distributed Systems: G. Roman

- **A1** Version Control in the Inscape Environment: D. Perry
- **A2** Version Control in Families of Large Programs: J. Winkler
- **A3** Human-Computer Communication Meets Software Engineering: C. Rathke
- **A4** A Conceptual Programming Environment: S. Reiss
- **A5** A Knowledge Structure for Reusing Abstract Data Types: D. Embley, S. Woodfield
- **A6** From Design to Redesign: G. Fischer, A. Lemke, C. Rathke
- **A7** PARIS: A System for Reusing Partially Interpreted Schemas: C. Richter, S. Katz, K. The
LODGING RESERVATION FORM
CUT-OFF DATE: 23 February 1987

PROCEDURE:

1. Send this form to:
   ICSE-9 Housing Bureau
   Monterey Peninsula Housing & Convention Bureau
   PO Box 1770
   Monterey, CA 93940
   Complete the charge authorization or enclose a check, for
   one night's lodging, payable to Monterey Peninsula
   Visitors and Convention Bureau.
2. Block reservations will not be accepted.
3. Phone reservations will not be accepted by either the
   bureau or the participating hotels/motels.
4. List a first, second and third choice; your reservation
   will be made at your most preferred, available hotel/motel.
5. You will receive your room confirmation directly from the
   hotel/motel.
6. The rates listed do not include room tax.
7. Suite requests must be made in writing to ICSE-9 Suite
   Request, MPV&CB, PO Box 1770, Monterey, CA 93940.
8. Notify the Monterey Peninsula Visitors and Convention
   Bureau, in writing, of any cancellations or changes in your
   reservation before 15 March 1987. After 15 March 1987,
   contact the confirming hotel/motel directly. Deposits will
   be refunded only with 72-hour cancellation notice.

(Please type or print)

Name: ____________________________
Organization: ______________________
Address: __________________________
Phone: ____________________________

Room Preference: ___ Single ___ Double
Dates: Arrival ________ Departure ________

Hotel/Motel Preference: please indicate your preference using
1st, 2nd, 3rd, etc. Single: Double:

- Casa Munras - standard $65 $65
- Casa Munras - deluxe $75 $75
- Doubletree $95 $105
- Hilton Inn Resort $89 $99
- Hyatt Regency $95 $95
- Monterey Beach - gardenside $55 $55
- Monterey Beach - oceanfront $65 $65
- Monterey Plaza - hills view $112 $112
- Monterey Plaza - canary row view $128 $128
- Monterey Plaza - ocean view $144 $144
- Monterey Plaza - deluxe ocean view $160 $160
- Sheraton $95 $105

Credit Card: ___ Visa ___ MasterCard ___ Choice ___ AmExpress
Credit Card Number: ____________________________
Expiration Date:_______________________________
Cardholder's Name: _____________________________
Signature: ____________________________

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PROCEDURE:
1. Send this form to:
   ICSE-9 Registration
   Computer Society of the IEEE
   1730 Massachusetts Ave., NW
   Washington, DC 20036-1903
2. To guarantee your registration, complete the charge
   authorization or enclose a check payable to Computer
   Society of the IEEE.
3. Members of sponsoring organizations are eligible for
   the reduced Member Fees. Please indicate the sponsoring
   organization and your membership number when
   claiming these fees.
4. The Conference Fee includes admission to the technical
   sessions, admission to the Tools Fair, one copy of the
   Conference Proceedings (except students), refreshments
   at breaks, and receptions.
5. The Tutorial Registration Fee includes tutorial notes and
   lunch.
6. Refunds (less a $15 handling fee) will be made if a
   request is received in writing by 15 March 1987.

(Please type or print)

Name: ____________________________
Organization: ______________________
Address: __________________________
Phone: ____________________________

TUTORIAL CHOICE (choose at most one):
   ___ Database (Nestor/Snodgrass)
   ___ Environments (Henderson/Ardis)
   ___ Formal (Kemmerer)
   ___ Knowledge-based (Barstow)
   ___ Reusability (Goodenough)

FEES: Advance Registration (Prior to 25 Feb 1987)
       Member      Non-Member      Student/Retired
Conference $160  $200  $25
Tutorial  $125  $155  $50
Late Registration (After 25 Feb 1987)
Member        Non-Member      Student/Retired
Conference $200  $250  $35
Tutorial  $155  $195  $60

Conference Fee: ____________________________
Membership Number: _________________________

Tutorial Fee: ____________________________
TOTAL FEE: ____________________________

Credit Card: ___ Visa ___ MasterCard ___ Choice ___ AmExpress
Credit Card Number: ____________________________
Expiration Date: ____________________________
Cardholder's Name: ____________________________
Signature: ____________________________