SOFTWARE ENGINEERING

COURSE OUTLINE:
This tutorial will assess the current status of software development methodology, including the techniques available for each developmental phase.
- Overview — major software problems, software developmental phases.
- Modeling — requirement formulation, requirement analysis, conceptual models, problem decomposition.
- Design — overview of techniques and tools, top-down design and verification, module specification techniques, the dual-program team approach.
- Implementation — systematic program construction, validation techniques, reliability assessment.
- Case studies

LECTURERS:
C.V. Ramamoorthy is Professor of Electrical Engineering and Computer Science at the University of California, Berkeley, and was associated with Honeywell Information Systems for 15 years. He is a member of the US Air Force Science and Technology Advisory Group and is Chairman of the AFIPS Education Committee. He is an IEEE Fellow, and was Technical Program Committee Chairman of the Second International Conference on Software Engineering.
Raymond T. Yeh is Professor of Computer Science and Electrical Engineering at the University of Texas at Austin. Besides publishing more than 50 technical papers, he has co-authored and edited three books in Computer Science. He was General Chairman of the Second International Conference on Software Engineering, and is the Editor of IEEE Transactions on Software Engineering. Yeh received his PhD in mathematics from the University of Illinois, Urbana.

DISTRIBUTED DATA-BASE MANAGEMENT

COURSE OUTLINE:
This tutorial will provide a survey of the latest technology and approaches to various aspects of distributed data base management.
- Overview of relational data-base management systems — a brief review of basic data-base management systems concepts.
- Overview of distributed data-base management — a survey of commercial implementations and R&D results, including techniques for distributed data-base system design and implementation.
- Approaches to distributed query processing — emphasizing the problems of efficiently executing queries which access data on multiple remotely located computers.
- Approaches to distributed concurrency control — dealing with the issues of synchronizing the activities of multiple updaters accessing the same distributed data base.
- Approaches to distributed data-base reliability — dealing with the problem of correct system operations in the presence of failures of computer components in the distributed data-base system.

LECTURERS:
James B. Rothnie, Jr., is vice president and manager of the Sponsored Research Division of Computer Corporation of America. He received his BS in 1970 and his PhD in 1972, both from MIT. His primary research interests are data-base management and computer networks.
Philip A. Bernstein is assistant professor of computer science at Harvard and a senior computer scientist at Computer Corporation of America. He received his BS from Cornell in 1971 and his PhD from the University of Toronto in 1975, both in computer science. His primary research interests are database management and operating systems.
David W. Shipman is a senior computer scientist at Computer Corporation of America. He is among the principal designers of SDD-1, a system for distributed data bases. He is active in the areas of distributed concurrency control and resiliency mechanisms for distributed systems. He is a graduate of MIT.

MICROCOMPUTER SUPPORT SOFTWARE

COURSE OUTLINE:
This tutorial will survey microcomputer applications, programming practices, software tools, programming languages, and cost/performance tradeoffs in microcomputer programming. A hands-on laboratory demonstration is scheduled in the evening.
- Overview of microcomputer applications, programming practices, the spectrum of available software tools, and cost/performance tradeoffs in microcomputer programming.
- Real-time programming and interrupt processing in microcomputer applications, including their impact on a selection of appropriate programming languages.
- A critical perspective on commercially available microcomputer development systems regarding resident support software and non-resident support software.
- Selected case studies in real-life microcomputer implementation with a special emphasis on the software aspect.
- Hands-on laboratory demonstration.

LECTURER:
Imsong Lee is a founder and president of Digital Electronics Corporation, a division of Chemetics Corporation of Burlington, CA., which manufactures microprocessor-based clinical laboratory instruments and peripherals. He is a visiting professor in electrical engineering and computer sciences at UC Berkeley, where he has developed a microprocessor laboratory as well as academic courses since 1972. He holds a doctorate in electrical engineering from Stanford University.
TUESDAY, November 14, 1978

8:30 a.m. - 9:45 a.m. OPENING SESSION
Welcome and Introduction: Wallace A. Depo, General Chairman
Awards Presentation: Merlin G. Smith, President, IEEE Computer Society
Keynote Address: Hans Mark, Under Secretary of the Air Force

10:00 a.m. - Noon TECHNICAL KEYNOTE SESSION
Overview of the Technical Program: C.V. Ramamoorthy, Technical Program Committee Chairman
Computers and Communications: R.W. Lucky, Bell Labs
Impact of Mass Memories on Software and Applications: A.S. Hoagland, IBM
The Golden Key of Mixed Computation: J.A. Gaines, Jr., Univ. of Michigan
Current Status of Concurrent Programming: P. Brinch Hansen, University of Southern California

TUESDAY AFTERNOON (Parallel Sessions)

1:30 p.m. - 3:00 p.m.
SESSION 1: MANAGEMENT OF COMPUTERS AND COMPUTER PROJECTS
Chairperson: D.B. Simmons, Texas A&M Univ.
“AS MANAGEMENT APPROACH TO TOTAL COMPUTER PRODUCTIVITY AT GODDARD SPACE FLIGHT CENTER,” E.P. Damon, NASA
“MANAGING LARGE-SCALE SOFTWARE DEVELOPMENT WITH AN AUTOMATED CHANGE CONTROL SYSTEM,” H.A. Bauer and R.H. Birchall, Bell Labs
“MANAGING SOFTWARE DEVELOPMENT REQUIREMENTS TO DELIVERY,” J.B. Synnott III, Bell Labs
“SHORT HAND COBOL,” K. Shizuka and S. Sakashita, Hitachi, Ltd.

SESSION 2: ASSET - A MODERN COMPUTER AIDED SOFTWARE ENVIRONMENT
Chairperson: L.J. Osterweil, Boeing Computer Services
“ASSET - AUTOMATED SYSTEMS & SOFTWARE ENGINEERING TECHNOLOGY, AN OVERVIEW,” J.R. Brown, L.J. Osterweil and L.G. Stucki, Boeing Computer Services
“AN INTEGRATED VERIFICATION AND VALIDATION CAPABILITY FOR REAL-TIME SOFTWARE,” R.N. Taylor, L.J. Osterweil and L.G. Stucki, Boeing Computer Services
“AS A SYSTEM FOR ANALYSIS AND VERIFICATION OF SOFTWARE DESIGN,” M.K. Smith, Boeing Computer Services

SESSION 3: SOFTWARE MAINTAINABILITY
Chairperson: H. Mills, IBM Federal Systems
“SOFTWARE MAINTAINABILITY: A CONCERN FOR LIFE CYCLE COSTING,” J.B. Munson, System Development Corp.
“AVAILABILITY ANALYSIS OF SOFTWARE SYSTEMS UNDER IMPERFECT MAINTENANCE,” K. Okumoto and A.L. Goel, Syracuse U.
Panelists: L.A. Belady, IBM Research Center; M. Halstead, Purdue Univ.

SESSION 4: OPERATING SYSTEMS AND LANGUAGES
Chairperson: J.Y.T. Leung, Northwestern U.
“WORKING SETS THEN AND NOW,” P.J. Denning, Purdue U.
“EPLX - A HIGH-LEVEL LANGUAGE FOR ELECTRONIC SWITCHING SYSTEMS,” N. Gutman and T.L. Shockey, Bell Labs
“A GENERAL PURPOSE MICROCODE ASSEMBLER,” J.T. Beckett and S.W. Ng, Bell Labs

SESSION 5: MICROPROCESSORS: FILLING THE SOFTWARE GAP
Chairperson: G.A. Korn, Univ. of Arizona
“CLOSING THE SOFTWARE GAP FOR MINI/MICROCOMPUTATION,” G.A. Korn, Univ. of Arizona
“AN EVALUATION OF MICROCOMPUTER SYSTEMS,” C. Bass, Zilog Corp.
“A MICROPROCESSOR OPERATING SYSTEM FOR REAL-TIME APPLICATIONS,” D.A. Anderson, Bell Labs
“SOFTWARE DEVELOPMENT FOR MICROPROCESSORS - A CASE STUDY,” F.A. Salomon, Bell Labs

TUESDAY AFTERNOON (Parallel Sessions)

3:30 p.m. - 5:00 p.m.
SESSION 6: MANAGEMENT ASPECTS OF SOFTWARE METHODOLOGY
Chairperson: D. Tajima, Hitachi Ltd.
“ON SOFTWARE MYTH NO. 6: SOFTWARE PRODUCTIVITY CAN BE ENHANCED,” D. Teichrow, E.A. Hershey III, and Y. Yamamoto, Univ. of Michigan
“PROGRAM TESTING - AN OVERVIEW FOR MANAGERS,” E.F. Miller, Jr., Software Research Assoc.
“INTERPROCEDURE STRUCTURE,” Y.-H. Chu, Univ. of Maryland
“MANAGEMENT PREDICTION - CAN SOFTWARE SCIENCE HELP?” M. Halstead, Purdue Univ.

SESSION 7: MODELING AND SOFTWARE DESIGN
Chairperson: T.L. Booth, Univ. Connecticut
“REALIZATION CONSIDERATIONS FOR DYNAMIC PERFORMANCE ANALYSIS IN AUTOMATED SOFTWARE DESIGN,” C.A. Wieck and T.L. Bogh, Univ. Connecticut
“A RELATIONAL MODEL OF THE INFORMATION REQUIRED IN SOFTWARE MAINTENANCE,” T. Glagowski and J. White, Univ. Connecticut
“TOWARDS THE PERFORMANCE EVALUATION OF DISTRIBUTED COMPUTING SYSTEMS,” C. Whityby-Stevens, Univ. Warwick
“SOFTWARE EVOLUTION USING THE SEER DATABASE,” E. Van Horn, Digital Equipment Corp.

SESSION 8: SOFTWARE TESTING
Chairperson: Edward Lieblein, US Army Communications R&D
“TOWARD A BETTER METHOD OF SOFTWARE TESTING,” J.C. Hallin and R.C. Hansen, Bell Labs
“AN EXTERNAL DEBUGGING SYSTEM FOR WEAPON SYSTEM PROGRAMS WRITTEN IN A HIGHER LEVEL LANGUAGE,” J.A. Gaines, Jr., US Naval Surface Weapons Center
“AN APPROACH TO REAL-TIME CONTROL FLOW CHECKING,” S.S. Yau, C.F. Chen, and K.H. Yau, Northwestern Univ.

SESSION 9: VERY HIGH LEVEL LANGUAGES AND AUTOMATIC PROGRAMMING
Chairperson: N. Prywes, Univ. Pennsylvania
Panelists: D. Teichrow, Univ. Michigan; R. Wexelblat, Sperry Univac; B.M. Leavensworth, IBM Research Lab.

SESSION 10: SOFTWARE & APPLICATIONS FOR ATTACHED ARITHMETIC PROCESSORS
Chairperson: G.P. O’Leary, Floating Point Systems
“The Design of a High Speed Arithmetic Processor,” G.P. O’Leary, Floating Point Systems
“FORTRAN Compiler for Arithmetic Processors,” T. Pettibone and A. Charlesworth, Floating Point Systems
“Sparse Matrix Calculations Using an Array Processor I,” J. Torin, Floating Point Systems

TUESDAY EVENING
5:15 p.m. - 6:45 p.m. COCKTAILS
TUESDAY EVENING (Parallel Sessions)

7:30 p.m. — 10:00 p.m.

SESSION 11: SECURITY AND PRIVACY
Chairperson: G. I. Davida, Univ. Wisconsin, Milwaukee
“DATA SECURITY: AN OVERVIEW,” G. I. Davida, Univ. Wisconsin; J. B. Kam, Columbia Univ.; D. L. Wells, Univ. Wisconsin
“AN EXAMPLE OF A FORMAL FLOW VIOLATION,” J. Millen, Mitre Corp
“RECENT DIRECTIONS IN SECURE COMPUTATION,” R. A. DeMillo, Georgia Tech, and D. Dobkin, Yale Univ.

APPLICATION OF FORMAL SPECIFICATION AND VERIFICATION TO SOFTWARE SYSTEMS,” G. Cady, R. Swanson, and J. Barnett, System Dev. Corp.
“A METHOD FOR MAINTAINING ROUTING DATA IN AUTOMATED RECORD KEEPING SYSTEMS,” D. Denning, Purdue Univ.
“OPERATING SYSTEM SECURITY,” D. K. Hsiao and D. S. Kerr, Ohio State U., and S. E. Madnick, MIT

SESSION 12: STUDENT PAPERS
Chairperson and Organizer: H. H. So, Univ. of Calif., Berkeley
A number of student papers will be invited for this competition. The winner will receive a cash award.

WEDNESDAY, November 15, 1978

WEDNESDAY MORNING (Parallel Sessions)

8:30 a.m. — 10:00 a.m.

SESSION 13: SOFTWARE DEVELOPMENT APPROACHES
Chairperson: Y. Nakamura, Fujitsu, Ltd.
“COMPLEMENTARY APPROACH TO THE EFFECTIVE SOFTWARE DEVELOPMENT ENVIRONMENT,” Y. Nakamura, R. Miyahara, and H. Takeuchi, Fujitsu, Ltd.
“SYSTEM REQUIREMENTS SPECIFICATION FOR REAL TIME SYSTEMS,” J. L. Uhrig, Bell Labs
“COMPUTER ENVIRONMENT FOR MINICOMPUTER SOFTWARE DEVELOPMENT,” A. Schubker, Texas Instruments
“DATA TYPES, STRUCTURES AND ABSTRACTIONS,” K. S. Shankar, IBM Federal Systems

SESSION 14: DISTRIBUTIVE DATA PROCESSING — A TUTORIAL WITH APPLICATIONS
Chairperson: E. D. Jensen, Honeywell
“DISTRIBUTIVE DATA PROCESSING: AN OVERVIEW,” E. D. Jensen, Honeywell
“PROTOCOL SUPPORT REQUIREMENTS FOR NETWORK OPERATING SYSTEMS,” S. Kimbleton, National Bureau of Standards
“A DISTRIBUTIVE MULTI-PROCESSOR TRAFFIC CONTROL SYSTEM,” H. F. Li and C. C. Liu, U. of Hong Kong
“INFORMATION SYSTEM FOR STEEL DISTRIBUTION IN INDIA: DDP AS AN APPROPRIATE TECHNOLOGY,” J. G. Krishnayya and N. Viswanathan, Systems Research Institute, India

SESSION 15: TOPICS ON DISTRIBUTED AND RELATIONAL DATABASE DESIGN
Chairperson: R. S. Kaplan, Bell Labs
“DESIGN OF A DISTRIBUTED ENTITY — RELATIONSHIP DATA BASE SYSTEM,” Y. E. Lien and J. H. Ying, Bell Labs
“EFFECTIVE ‘ON-LINE’ DEADLOCK DETECTION TECHNIQUE FOR DISTRIBUTED DATABASE MANAGEMENT SYSTEMS,” S. S. Iookeeper, Univ. Alberta, Canada
“CLIO — A RELATIONAL DATA BASE SYSTEM,” P. S. Para, Bell Labs
“REDAS — A RELATIONAL DATA ACCESS SYSTEM FOR REAL-TIME APPLICATIONS,” J. R. McSkimin, Bell Labs

SESSION 16: PROCESS COMPUTER SOFTWARE — LANGUAGES & MAINTENANCE
“The Perl Language,” T. Martin, Kernforschungsanlage/PDV, Germany
“EXPERIENCE WITH LANGUAGES IN PROCESS CONTROL COMPUTER SYSTEMS,” D. Brininger, Honeywell, France
“PROCESS CONTROL LANGUAGES — VENDOR’S PERSPECTIVE OF ADEQUACY AND FUTURE REQUIREMENTS,” L. Shaw, Westinghouse Corp.
“SOFTWARE MAINTENANCE GUIDELINES FOR INDUSTRIAL COMPUTER SYSTEMS,” T. L. Willmott, Bailey Controls Co.

SESSION 17: SOFTWARE TESTING AND ANALYSIS
Chairperson: W. E. Howden, Univ. Victoria, Canada
“TESTING — ACHIEVEMENTS AND FRUSTRATIONS,” L. Clarke, Univ. Massachusetts
“TESTING FOR MAINTAINABILITY OF APPLICATION SOFTWARE,” R. G. Hamlet, Univ. Maryland
“FUNCTIONAL PROGRAM TESTING,” W. E. Howden, Univ. Victoria, Canada

WEDNESDAY MORNING (Parallel Sessions)

10:30 a.m. — Noon.

SESSION 18: THE SOFTWARE DEVELOPMENT SYSTEM — EXPERIENCE AND EVOLUTION
Chairperson: C. G. Davis, US Army BMD-ATC
“The SOFTWARE REQUIREMENTS ENGINEERING METHODOLOGY: TWO YEARS LATER,” M. W. Alford, TRW
“EXPERIENCE UTILIZING COMPONENTS OF THE SOFTWARE DEVELOPMENT SYSTEM,” P. C. Belford, Computer Sciences Corp.

SESSION 19: A DISTRIBUTED DATA PROCESSING DEVELOPMENT TECHNOLOGY
Chairperson: J. E. Solf, US Army BMD-ATC
“DISTRIBUTED DATA PROCESSING SYSTEM DESIGN — A LOOK AT THE PARTITIONING PROBLEM,” M. P. Mariani, TRW

SESSION 20: DATA BASE DESIGN
Chairperson: R. T. Yeh, Univ. Texas, Austin
“DATA BASE DESIGN — AN APPROACH AND SOME ISSUES,” R. T. Yeh, N. Roussopoulos and P. Chang, Univ. Texas, Austin
“A SOFTWARE ENGINEERING APPROACH TO DATA BASE SYSTEMS,” H. Weber, Bereich Datenbearbeitung, Uned Elektronik, Germany

SESSION 21: ORGANIZATION OF ADP SOFTWARE DEVELOPMENT
Chairperson: Kip Riddle, US Civil Service Commission
Panelists: Z. Jelinski, McDonnell-Douglas Astronautics; D. Weinstein, Central Intelligence Agency; J. Glacia, US Air Force

SESSION 22: CURRENT SOFTWARE TOOLS
Chairperson: G. Ligler, Texas Instruments
“PROGRAMMABLE SYSTEM FOR SOFTWARE CONFIGURATION MANAGEMENT,” D. S. Johnson, C. Kolberg, and J. Sinnamon, Texas Instruments
“TOOLS AND TECHNIQUES FOR IMPLEMENTING A LARGE COMPILER ON A SMALL MACHINE,” B. L. Wolman and C. L. Braun, Softech

WEDNESDAY AFTERNOON (Parallel Sessions)

1:30 p.m. — 3:00 p.m.

SESSION 23: MODELING ASPECTS OF SOFTWARE DEVELOPMENT
Chairperson: R. C. T. Lee, National Tsing Hua Univ. Taiwan
“DATA INDEPENDENT HIERARCHIES,” R. G. Kaylor, Bell Labs
“A DECOMPOSITION OF THE COMPLEXITY OF SYSTEM DEVELOPMENT PROCESSES,” D. R. Fitzwater, Univ. Wisconsin, Madison
“The STRUCTURED DESIGN OF A DATA COMPRESSION PROGRAM,” R. A. Thomas, Bell Labs
“SDS—SON FOR MANAGING STATISTICAL DATA,” T. Ogumi and K. Yoshimura, Hitachi Ltd., Japan
SESSION 37: HARDWARE/SOFTWARE TRADEOFFS: DIFFERENT PERSPECTIVES
Chairperson: W. Toy, Bell Labs
“COMPILER DESIGN VIEWPOINT,” R.W. Mitze, Bell Labs
“OPERATING SYSTEM DESIGN VIEWPOINT,” K.W. Switzer and M.R. Georgen, Bell Labs
“HARDWARE/DESIGN VIEWPOINT,” D.R. Anderson and K.J. Thurber, Sperry Univac
“MAINTENANCE DESIGN VIEWPOINT,” F.M. Goetz and D.C. Plisch, Bell Labs

SESSION 38: TRENDS FOR THE 80’s IN COMPUTER SCIENCE AND ENGINEERING EDUCATION
Chairperson: R. Fairley, Colorado State Univ.
“OREGON REPORT ON COMPUTING IN THE 1980’s,” M. Mulder, Bonneville Power Admin., and T. Lewis, Oregon State Univ.
“FUTURE EDUCATIONAL COMPUTER FACILITIES,” N. Sondak, San Diego State Univ.
“PROGRAMS IN SOFTWARE ENGINEERING EDUCATION,” D. Rine, Western Illinois Univ., and G. Davida, Univ. of Wisconsin, Milwaukee

SESSION 39: SOFTWARE APPLICATIONS I
Chairperson: R.T. Chien, Univ. Illinois, Urbana
“DESIGN TREND OF SECOND GENERATION APPLICATION SOFTWARE,” L. Beltracchi, US Nuclear Regulatory Commission
“DESIGN AND IMPLEMENTATION OF THE ‘S’ SYSTEM FOR INTERACTIVE DATA ANALYSIS,” J.M. Chambers and N.R.A. Becker, Bell Labs
“COMPUTER AIDED DIGITIZING OF ENGINEERING DRAWINGS,” W. Beirid and K. Ramachandran, Bell Labs
“PROCESS CONSTRUCTION – AN OVERVIEW WITH CASE STUDIES,” L. Marker, TRW

THURSDAY MORNING (Parallel Sessions)
10:30 a.m. – Noon
SESSION 40: FAULT TOLERANT SOFTWARE
Chairperson: S.S. Yau, Northwestern Univ.
“RECONFIGURATION STRATEGIES FOR THE SFT FAULT-TOLERANT COMPUTER,” M.W. Green and C.B. Weinstock, SRI
“STRATEGIES FOR STRUCTURES AND FAULT TOLERANT DESIGNS OF RECOVERY PROGRAM,” K.H. Kim, H. Hecht, J. Huang, and M. Naghibzadeh, Univ. of Southern California

SESSION 41: COMMUNICATION PROCESSES
Chairperson: J. Scanlon, Bell Labs
“RULES FOR PRODUCING LOGICALLY COMPLETE TWO-PROCESS INTERACTIONS AND COMMUNICATIONS PROTOCOLS,” P. Zafiropolou, IBM Research Lab, Switzerland
“DATA FLOW CONTROL IN THE X25 PACKET LEVEL PROTOCOL – A FIRST FORMAL DESCRIPTION FOR IMPLEMENTATION,” S. Schindler, K. de Meer, and G. Henken, Technische Universität Berlin
“What Mininet Has Taught Us About Programming Style,” N.J. Livesey and E. Manning, Univ. Waterloo, Canada

SESSION 42: THE IMPACT OF HARDWARE ARCHITECTURE ON FUTURE DATA BASE MANAGEMENT AND INFORMATION RETRIEVAL SYSTEMS
Chairperson: P.B. Berra, Syracuse Univ.
“RECENT DEVELOPMENTS IN DATA BASE RETRIEVAL HARDWARE ARCHITECTURES,” P.B. Berra, Syracuse U.
“DIRECTION FOR MEMORY HIERARCHIES AND THEIR COMPONENTS,” A.J. Smith, Univ. Calif., Berkeley
“A DATA BASE MACHINE DESIGN AND EVALUATION FACILITY,” T.A. Liu, Rome Air Development Center, and P.B. Berra, Syracuse U.

SESSION 43: TRENDS FOR THE 80’s IN APPLICATIONS AND SOCIETAL EDUCATION
Chairperson: A. Dekock, Univ. Missouri at Rolla
“REPORT ON COMPUTERS AND SOCIETY,” G. Engel, Old Dominion Univ., and D. Austing, Univ. Maryland
“A MASTERS DEGREE PROGRAM IN INFORMATION SYSTEMS,” J. Nimnamaker, Univ. Arizona
“COMPUTER SCIENCE IN HIGH SCHOOL EDUCATION,” S. Sharp, Philadelphia Public School System

SESSION 44: SOFTWARE APPLICATIONS II
Chairperson: H. Trauboth, Nuclear Research Center and Univ. of Karlsruhe, Germany
“SYNAPTIC MODELS AND COMPUTERIZED DECISION MAKING,” R.T. Chien, Univ. Illinois, Urbana
“COMPUTERIZED INTELLIGENT INFORMATION SYSTEM,” J. Tou, Univ. Florida
“A SYSTEM FOR LABOR NEGOTIATIONS,” T. Tenenbaum, Brooklyn College; M. Shurin and Y. Wilsomovsky, Long Island Univ.; and G. Weinberger, Brooklyn College
“CHANGE TOLERANCE TRANSACTIONS SOFTWARE,” R.L. Martin, Bell Labs

THURSDAY AFTERNOON (Parallel Sessions)
1:30 p.m. – 3:00 p.m.
SESSION 45: SOFTWARE ENGINEERING EXPERIENCE
Chairperson: R. Williams, TRW
“A MANAGEMENT METHODOLOGY FOR TESTING SOFTWARE REQUIREMENTS,” K.W. Krause and L.W. Diamont, TRW
“AEGIS SOFTWARE RELIABILITY AND MAINTAINABILITY,” E.J. Strong, Computer Sciences Corp.

SESSION 46: SOFTWARE TECHNIQUES FOR RECONFIGURABLE AND DYNAMIC ARCHITECTURE
Chairpersons: Steven and Svetlana Kartasheva, Univ. Nebraska, Lincoln
“SOFTWARE CONTROL AND PROGRAM DESIGN FOR ALTERABLE ARCHITECTURE,” J.L. Baer, Univ. Washington
“SOFTWARE PROBLEMS FOR DYNAMIC ARCHITECTURE,” S. Kartashev and S. Kartasheva, Univ. Nebraska
“ON SOME PARALLEL PROGRAMMING TECHNIQUES,” G.J. Lipovski, Univ. Texas, Austin
“A SURVEY AND METHODOLOGY OF RECONFIGURABLE MULTI-MODULE SYSTEMS,” A.D. Friedman, George Washington Univ., and F. Salvetti, Univ. of Southern Calif.

SESSION 47: THE RELATIONSHIP AND FUTURE OF DATA BASE SYSTEMS AND INFORMATION SYSTEMS
Chairperson: P. Chen, MIT
Panelists: A. Orden, Univ. Chicago; B. Brown, Hughes Aircraft; B.V. Balachandran, Northwestern Univ.; P. Chen, MIT

SESSION 48: THE IMPACT OF CHANGING TECHNOLOGY ON COMPUTER EDUCATION
Chairperson: E.C. Jones, Jr., Iowa State Univ.
“The Impact of New Memory Technology on Computer Education,” A.V. Pohn, Iowa State Univ.
The Impact and Role of Computer Graphics in Education,” A. Bork, Univ. of Calif., Irvine
“Use of Software Simulators in Continuing Education,” C.J. Tunis, IBM, and R. Vemuri and J. Corcacchio, SUNY Binghamton

SESSION 49: SOFTWARE APPLICATIONS III
Chairperson: P. Enslow, Georgia Tech
“APPLICATION OF SOFTWARE ENGINEERING TO SCIENTIFIC AND ENGINEERING APPLICATIONS,” M. Hosthv, TRW
“DISTRIBUTED SIMULATION,” K.M. Chandy and J. Misra, Univ. Texas
“Examples of an Early Sizing, Cost and Schedule Estimate for an Application Software System,” L.H. Putnam, General Electric
Complete and return this form (with your check made payable to COMPSAC 78) to:
COMPSAC 78
P.O. Box 639
Silver Spring, Maryland 20901
Telephone: (301) 439-7007

(please check appropriate boxes)

<table>
<thead>
<tr>
<th>TUTORIAL 1 Software Engineering</th>
<th>Member</th>
<th>Non-Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>$60</td>
<td>$75</td>
<td>$70</td>
</tr>
<tr>
<td>$60</td>
<td>75</td>
<td>$85</td>
</tr>
<tr>
<td>TUTORIAL 3 Microcomputer Support Software</td>
<td>$60</td>
<td>$70</td>
</tr>
<tr>
<td>$60</td>
<td>75</td>
<td>$85</td>
</tr>
<tr>
<td>COMPSAC ONLY</td>
<td>$60</td>
<td>$70</td>
</tr>
<tr>
<td>$60</td>
<td>75</td>
<td>$85</td>
</tr>
<tr>
<td>TUTORIAL 1 + COMPSAC</td>
<td>$120</td>
<td>$130</td>
</tr>
<tr>
<td>$120</td>
<td>135</td>
<td>$145</td>
</tr>
<tr>
<td>TUTORIAL 2 + COMPSAC</td>
<td>$120</td>
<td>$130</td>
</tr>
<tr>
<td>$120</td>
<td>135</td>
<td>$145</td>
</tr>
<tr>
<td>TUTORIAL 3 + COMPSAC</td>
<td>$120</td>
<td>$130</td>
</tr>
<tr>
<td>$120</td>
<td>135</td>
<td>$145</td>
</tr>
</tbody>
</table>

STUDENT DISCOUNT available for COMPSAC ONLY (Fee: $25). To receive a discount, students must be IEEE Student Members and must show membership card at the door.

NOTE: Requests for refunds must be received in writing no later than October 30, 1978.

- TUTORIAL registration fee includes luncheon and bound text of the selected tutorial.
- COMPSAC registration fee includes one copy of the Conference Proceedings, and 2 complimentary drink tickets for each of the COMPSAC hosted parties, Tuesday and Wednesday nights.

Limited attendance. Register early – avoid disappointment.

LATE REGISTRATIONS will be accepted at the Palmer House beginning Sunday evening, November 12, 1978.

IEEE or IEEE COMPUTER SOCIETY Membership Number

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION OR TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ORGANIZATION

<table>
<thead>
<tr>
<th>ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

CITY/STATE/ZIP

Complete and mail the reservation to: The Palmer House
State and Monroe Streets
Chicago, Illinois 60690
Phone: (312) 726-7500

To confirm your room reservation, the Palmer House must receive this coupon by October 25, 1978.
Rooms will be held no later than 6:00 p.m. on day of arrival unless reservation coupon is accompanied by deposit to cover first night’s rental.

Please indicate the number of rooms and circle the rates desired. If the desired rate is not available, a closest rate will be given.

<table>
<thead>
<tr>
<th>The Palmer House</th>
<th>The Palmer House Tower</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single (1 person)</td>
<td>$34, $37, $39</td>
</tr>
<tr>
<td>Double</td>
<td>$46, $49, $51</td>
</tr>
<tr>
<td>Suite (check rates with hotel)</td>
<td></td>
</tr>
<tr>
<td>Arrival date . . . AM ☐ PM ☐ . . . . . . . . Departure date . . . . . . AM ☐ PM ☐</td>
<td></td>
</tr>
</tbody>
</table>

NAME

<table>
<thead>
<tr>
<th>ADDRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

CITY/STATE/ZIP

COMPANY NAME
If you cannot attend COMPSAC 78 but would like the conference proceedings or the tutorial shipped directly to you, simply fill out and return the order form below with your check or money order payable to the IEEE Computer Society.

Mail to: IEEE Computer Society
5855 Naples Plaza, Suite 301
Long Beach, CA 90803

I am unable to attend COMPSAC 78. Please ship me the conference proceedings and/or tutorial indicated below (check appropriate box(es)):

<table>
<thead>
<tr>
<th>Cat. #</th>
<th>Description</th>
<th>Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>196</td>
<td>COMPSAC 78 Conference Proceedings</td>
<td>$22.50 (M) $30.00 (N)</td>
</tr>
<tr>
<td>123</td>
<td>COMPSAC 77 Conference Proceedings</td>
<td>$18.75 (M) $25.00 (N)</td>
</tr>
<tr>
<td>130</td>
<td>COMPSAC 77 Tutorial: Quantitative Management—Software Cost Estimating</td>
<td>$10.00 (M) $13.50 (N)</td>
</tr>
<tr>
<td>131</td>
<td>COMPSAC 77 Tutorial: Program Testing</td>
<td>$10.00 (M) $13.50 (N)</td>
</tr>
<tr>
<td>075</td>
<td>COMPSAC 77 Tutorial: Software Design Techniques</td>
<td>$9.00 (M) $12.00 (N)</td>
</tr>
<tr>
<td>169</td>
<td>Proceedings from COMPCON 78 Fall: Computer Communications Networks</td>
<td>$18.75 (M) $25.00 (N)</td>
</tr>
<tr>
<td>172</td>
<td>Digest of Papers from COMPCON 78 Spring: LSI Technology: Status, Limits, Alternatives</td>
<td>$15.00 (M) $20.00 (N)</td>
</tr>
</tbody>
</table>

(CHECK ONE) □ MY PAYMENT OF __________ IS ENCLOSED. □ ADD $3.00 BILLING CHARGE AND INVOICE ME.
(California residents add 6% sales tax.)

Name ___________________________________________, Computer Society or IEEE Member No. ___________________________

Address _______________________________________________________________________________________________

City ___________________________ State ___________ Zip ___________