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Featuring... for the first time
Exhibits!

The IEEE Computer Society's
Sixth International Computer
Software & Applications Conference
Exhibit Dates: November 10-12, 1982
The Palmer House Hotel, Chicago, Illinois

The Sixth International Computer Software and Applications Conference Technical Show, sponsored by the IEEE Computer Society, will amass the highest quality of computer software knowledge and expertise in a multi-session forum of information exchange.

This unique technical show, featuring the latest information, products and services in the multi-billion dollar computer software and applications industry, will attract an international audience and establish this landmark event as a first in a series of future successes.

The following exhibitors are planning to participate at COMPSAC '82:

American Software, Inc.
American Computer Group
Aregon Software Systems
Consumer Systems
COMSAT
Battelle Columbus Laboratories
Burroughs Corporation
Mathematica Products Group

Maxell Corporation
Megatek Corporation
National Technical Information Service
IBM
Nixdorf Computer Corporation
Pansophic Systems
Parkins-Elmer
Prime Computer
Software AG of North America
Tektronix
Wintel Corporation
ZILOG
and more . . . .

Exhibit Hours:
Exhibit Hours have been scheduled to prevent a conflict with the technical program. This time-table will provide maximum traffic for the exhibitors and allow ample time for conference attendees to view the practical applications displayed on the exhibit floor.

Wed., Nov. 10 ... 10:30 a.m.-6:00 p.m.
Thurs., Nov. 11 ... 10:00 a.m.-6:00 p.m.
Fri., Nov. 12 ... 10:00 a.m.-3:00 p.m.

Structured Testing
Thomas J. McCabe, Lecturer
Monday, November 8, 1982
9:00 a.m.-5:00 p.m.

Audience: This seminar is intended for programmers, systems analysts and designers, project team members and their supervisors who work with system development or maintenance.

Course Description: In most software systems the central problems are reliability and maintainability. Past experience indicates that we often spend 50% of our time in testing and more than 70% of our dollars in maintenance. On most projects, however, the testing and modularization practices are severely inadequate. This seminar presents techniques and methods that consistently improve reliability and maintainability and which should be employed in any software project.

Course Outline:
The Role and Importance of Testing
Levels of Testing: Against specifications; functions; performance; software modules.
The Central Problem—Software Complexity: reliability, development, maintainability.
Measurement and Quantification of Software Complexity: Graph Theory, Alternative Methods, language constructs.
Structured Modularization: Using complexity to modularize the design, code.
Structured Testing: the technique; testing specifications, designs, the code
Effectiveness and Reliability of Testing Environments: Top-down and bottom-up testing integration;
Software Maintenance
Thomas J. McCabe is President of McCabe Associates, Inc. He is widely known as a consultant and authority in the area of software development, testing, and quality control. Mr. McCabe is best known for his research and publications on software complexity and by the complexity measure that bears his name. Mr. McCabe has developed and published the Structured Testing Methodology which is being adopted extensively. He has developed and taught advanced state-of-the-art courses in Software Quality Assurance, Structured Testing, Software Specification and Design, and Software Engineering.

Mr. McCabe has an M.S. degree in mathematics from the University of Connecticut, is listed in "Who's Who in the East," and has been elected to the "International Dictionary of Biography."
AN OVERVIEW OF NETWORKS AND DISTRIBUTED PROCESSING
Burt H. Liebowitz, Lecturer
Monday, November 8, 1982
9:00 a.m. - 5:00 p.m.

Audience: Managers and technical personnel who desire an overview and basic understanding of distributed processing.

Course Description: This tutorial presents an overview of distributed processing, including a general introduction to computer networks. Three major areas of distributed processing are defined: point-of-use systems, resource-sharing networks, and multiple-processor systems. Characteristics, examples, benefits, and tradeoffs are presented for each area.

Technological issues are presented involving processors, communications, intercomputer coupling, executive software structures, system architectures, component selection, and allocation of functions and data files to multiple processors. Several case histories are discussed to provide insight into design issues, cost effectiveness, and management problems.

Course Outline:
Computer Technology in Distributed Systems: minis, micros, mainframes, connecting multiple computers.
Resource-Sharing Networks: computer communication networks, computer networks.
Intelligent Terminals: technology, applications.
Point-of-Use Systems
Multiple-Processor Systems: architectures, software, comparisons with large systems, design issues.
Multiprocessors
Distributed Data Bases: file-splitting, directory-splitting, design factors, problem areas.
Case Histories
Management Issues
Design Issues
Future Trends

Burt H. Liebowitz is President of the Software and Systems Division of ConTel Information Systems. He was formerly Executive Vice-President of the International Computing Co. prior to it merging into ConTel Information Systems. Mr. Liebowitz holds M.S. degrees in mathematics and electrical engineering. He has 20 years experience in the computer field, the last ten of which have been involved with distributed systems. He was responsible for the design and software implementation of the distributed minicomputer system used for offtrack betting in New York City. He was previously employed by Bellcomm, Inc., and ALL, Inc.

Mr. Liebowitz has taught at government installations and universities, including George Washington University, where he developed the course on distributed processing. Mr. Liebowitz is principal author of the tutorial text, "Distributed Processing" (IEEE Computer Society), and has thirteen articles published in leading technical journals.

FACILITIES FOR END USERS IN THE 1980s
James A. Larson, Lecturer
Tuesday, November 9, 1982
9:00 a.m. - 5:00 p.m.

Audience: Application programmers and systems analysts who design and implement systems for use by non-computer experts.

Goal: Evaluate the trends and techniques which enable non-computer experts to interact easily with computerized systems and to utilize those systems to become more productive in their jobs.

Course Description: End users—the people who use computers to perform their jobs—are categorized. Easy and efficient techniques for machine communication are presented. End user tools for accessing, analyzing, and disseminating computerized data are described. The automation of office tasks will leave the end user with more time to concentrate on substantive rather than support tasks.

Course Outline:
Introduction: background, goals, trends.
Speaking with the computer: speech synthesis, speech recognition, applications.
Communicating via pictures: spatial management of data, query by example, applications.
Retrieving, analyzing, and disseminating information: information storage and retrieval, decision support systems, electronic mail systems.
Automating the office: integrating word processing, database management and electronic mail; automating office procedures.

Developing end user facilities: forms and menus, friendly dialogues, help facilities, interoperability, common interfaces across systems.

James A. Larson is currently involved in research in distributed databases at the Honeywell Corporate Technology Center in Minnesota. Previously he has been involved in the design of integrated automated office systems for Olivetti, Italy, and research in database computers at Sperry Univac. He has been active on the CODASYL Data Description Language Committee and has taught courses in databases for the University of Minnesota. Dr. Larson is author of Database Management System Anatomy, co-editor of IEEE Computer Society Tutorial: Data Base Management in the 1980s, and author of numerous technical papers and articles.

ROBOTICS
George Lee, R.C. Gonzalez, and K.S. Fu, Lecturers
Tuesday, November 9, 1982
9:00 a.m. - 5:00 p.m.

Audience: Engineers and managers who are responsible for the development of robotic systems for industrial automation and computer-aided manufacturing.

Course Description: This tutorial presents an overview of robotics, which is the study of basic organization and operation of intelligent computer-based robots. Topics include robot arm kinematics, dynamics and control; trajectory planning and intelligent control; and applications of robot in industrial automation.

Course Outline:
Introduction: Robot configuration and assembly, robot as an intelligent computer-based system.
Robot Arm Kinematics, Dynamics and Control:
Kinematic equations for manipulators, classification of manipulators, derivation of robot arm dynamics, development of the error-controlled system model, robot control languages.
Trajectory Planning: Calculation of a 4-3-4 trajectory, straight line trajectory calculations, trajectory execution.
Force Sensor: Wrist force sensor control algorithm, force feedback is automatic assembly.
Computer Vision: Vision systems for robots, image processing techniques, shape analysis and recognition, stereo and 3D vision. (R.C. Gonzalez)
 Robot Planning and Intelligent Control: Robot problem-solving, learning in robot planing. (K.S. Fu)
George Lee is an assistant professor of electrical and computer engineering at the University of Michigan, Ann Arbor, where he teaches robotics, programming languages and data structures, and application of real-time computer systems. An author of twenty publications on robotic and manipulator systems, his current research interests include advanced control for multirobot assembly systems and computer recognition of overlapping parts using a single camera. Lee received his B.S. and M.S. in electrical engineering from Washington State University and his Ph.D. in electrical engineering from Purdue University in 1978.
R.C. Gonzalez is IBM Professor of Electrical Engineering and Computer Science at the University of Tennessee, Knoxville.
K.S. Fu is Goss Distinguished Professor of Engineering and Professor of Electrical Engineering at Purdue University.
TUESDAY, November 9, 1982

5:30 p.m.-7:00 p.m.  Special Pre-conference Cocktail Reception

WEDNESDAY, November 10, 1982

9:00 a.m.-10:15 a.m.  OPENING SESSION

Welcome—Karl Marion ette, General Chairman
Awards Presentation—Oscar García, President, IEEE Computer Society
Overview of Program—C.V. Ramamoorthy, Program Chairman
Keynote Address—Edith Martin, Deputy Undersecretary of Defense for Research and Advanced Technology

DEPARTMENT OF DEFENSE SOFTWARE TECHNOLOGY INITIATIVE

10:15 a.m.-10:45 a.m.  Break

SESSION 1: SOFTWARE TOOLS (10:45 a.m.-12:15 p.m.)
Chairperson: J.B. DeWolfe, Charles Stark Draper Laboratory, Inc.
THE CURRENT STATUS OF TOOL USAGE—H. Hecht, Sohar, Inc. and R.C. Houghton, Jr., National Bureau of Standards
OMEGA—A DATA FLOW ANALYSIS TOOL FOR THE C PROGRAMMING LANGUAGE—C. Wilson, Bell Laboratories, Denver; and L. Osterweil, University of Colorado
AN INSTRUMENTATION SYSTEM FOR MEASUREMENT OF SOFTWARE PERFORMANCE—R.M. Lenk, T.L. Booth, T.T. Wetmore IV, University of Connecticut

SESSION 2: SOFTWARE RELIABILITY ASSESSMENT (10:45 a.m.-12:15 p.m.)
Chairperson: S. Winkler, IBM Corp.
ASSESSMENT OF SOFTWARE RELIABILITY MODELS—R. Troy and R. Moawad, Agence de L'Informatique, France
THE S-SHAPED SOFTWARE RELIABILITY GROWTH CURVE: HOW GOOD IS IT?—M. Ohba and K. Takeda, IBM Japan Ltd.; S. Yamada and S. Osaki, Hiroshima University, Japan
SOFTWARE RELATED FAILURES ON THE IBM 3081: A RELATIONSHIP WITH SYSTEM UTILIZATION—D.J. Rossetti and R.K. Iyer, Stanford University

SESSION 3: DATABASE SYSTEM CONVERSION: PROBLEMS AND SOLUTIONS (10:45 a.m.-12:15 p.m.)
Chairperson: S.Y.W. Su, University of Florida

SESSION 4: EVALUATION AND ALGORITHMS FOR DISTRIBUTED PROCESSING (10:45 a.m.-12:15 p.m.)
Chairperson: C.-P. Liu, Cheng Du Institute of Radio Engineering, China
AN EVALUATION OF THE APPLICABILITY OF DIFFERENT MATHEMATICAL APPROACHES TO THE ANALYSIS OF DECENTRALIZED CONTROL ALGORITHMS—J.A. Stankovic, N. Chowdhury, R. Mirchandaney, I. Sidhu, University of Massachusetts
RECONFIGURATION CONTROL ALGORITHMS FOR RECONFIGURABLE COMPUTER SYSTEMS—Y.W. Ma, University of Pennsylvania
A METHOD FOR COMPARING DISTRIBUTED COMPUTER SYSTEMS ARCHITECTURES—D.M. DiDomenico and S.M. Jacobs, TRW Electronics and Defense

12:15 p.m.-2:00 p.m.  Lunch Break

SESSION 5: SOFTWARE TECHNOLOGY EDUCATION (2:00 p.m.-3:30 p.m.)
Co-chairman: T. Ichikawa, Hiroshima University, Japan
R.T. Yeh, University of Maryland
Panelists: Y. Matsumoto, Toshiba Corp.; J.B. Munson, System Development Corp.; C.V. Ramamoorthy, University of California, Berkeley

SESSION 6: SOFTWARE QUALITY MEASUREMENT (2:00 p.m.-3:30 p.m.)
Chairperson: J.P. Cavana, Rome Air Development Center, U.S. Air Force
A COMPARATIVE STUDY OF SOFTWARE METRICS FOR REALTIME SOFTWARE—H. Jensen, Johnson Controls, Inc.; and K. Vairavan, University of Wisconsin-Milwaukee
SOME DESIGN STABILITY MEASURES FOR SOFTWARE MAINTENANCE—S.S. Yau, Northwestern University; and J.S. Cofolletto, Arizona State University
ON THE UNCERTAINTY IN THE CORRECTNESS OF COMPUTER PROGRAMS—F.B. Bastani, University of Houston

SESSION 7: DATABASE DESIGN, CONVERSION AND INTEGRITY (2:00 p.m.-3:30 p.m.)
Chairperson: J.L. Berg, Standard Oil Company, Indiana
A METHOD OF CONVERSION FROM THE ENTITY-RELATIONSHIP MODEL TO ADABAS PHYSICAL DESIGN USING AN EXTENDED ER MODEL—K.H. Davis, Northern Illinois University
A CASE STUDY OF DATABASE SYSTEM CONVERSION—H. Lam and S.Y.W. Su, University of Florida
A SCHEME FOR VERIFICATION OF INTEGRITY ASSERTIONS IN A TRANSACTION PROCESSING SYSTEM—L. Lilien and B. Bhargava, University of Pittsburgh

SESSION 8: THE FUTURE OF SOFTWARE TECHNOLOGY FOR TELECOMMUNICATIONS SYSTEMS (2:00 p.m.-3:30 p.m.)
Chairperson: J. Scanlon, Bell Laboratories, Naperville
Panelists: T. Arnold, Bell Laboratories, Naperville; A. Davis, GTE Laboratories; J. Manley, IIT

3:30 p.m.-4:00 p.m.  Break

SESSION 9: SOFTWARE DESIGN AND PROTOTYPING (4:00 p.m.-5:30 p.m.)
Chairperson: R.B. Grafton, Office of Naval Research, U.S. Navy
THE LOGICAL DESIGN OF A MAJOR AFLC INFORMATION SYSTEM—L.R. Gieszl, Johns Hopkins University, Applied Physics Lab
INTERACTIVE DIRECT-EXECUTION PROGRAMMING AND TESTING—Y. Chu, M. Abrams, University of Maryland; K. Itano, University of Tsukuba, Japan; and Y. Fukunaga, Hitachi Ltd., Japan
APPLICATION OF A CLUSTERING TECHNIQUE TO PROGRAM DEVELOPMENT—Y. Matsumoto, Toshiba Co., Japan
PROTOTYPING AND EVALUATING A USER INTERFACE—K. Hemenway, L. McCusker, Bell Laboratories, Piscataway

SESSION 10: SOFTWARE MEASUREMENT (4:00 p.m.-5:30 p.m.)
Chairperson: J.P. Cavana, Rome Air Development Center, U.S. Air Force

SESSION 11: TOPICS IN DATABASE SYSTEMS (4:00 p.m.-5:30 p.m.)
Chairperson: U. Gupta, Northwestern University
A BINARY RELATION REPRESENTATION FOR PROGRAM MODELS—S.S. Yau, P.C. Grabow and B.P. Weems, Northwestern University
PDSON: A PERSONAL DISTRIBUTED DATABASE MANAGEMENT SYSTEM ON A COMPUTER NETWORK—Y.H. Chin, Institute of Computer Decision Sciences, National Tsing Hua University, Taiwan
ON THE FLEXIBILITY PROVIDED BY CONFLICT-FREE NORMALIZATION—A.K. Arora, Illinois Institute of Technology; C.R. Carlson, Standard Oil, Indiana

SESSION 12: THE SYSTEM LEVELS: MULTIPROCESSING AND OPERATING SYSTEMS (4:00 p.m.-5:30 p.m.)
Chairperson: R.H. Kuhn, Northwestern University
THE IMPACT OF VLSI ON COMMUNICATIONS IN CLOSELY COUPLED MULTIPROCESSOR NETWORKS—R.M. Fujimoto and C.H. Sequin, University of California, Berkeley
A MULTIPROCESSOR ARCHITECTURE FOR REAL-TIME FAULT-TOLERANT COMPUTING—K. Kant, Northwestern University
A NEW SWITCHING SOFTWARE ARCHITECTURE FOR OA ORIENTED EPABX TO ALLOW FIELD MODIFICATION—T. Tsuda, S. Morita, Y. Fuji and M.W. Kim, Fujitsu Laboratories, Ltd., Japan
NAXOS: AN OPERATING SYSTEM NUCLEUS FOR MICROPROCESSORS—Y. Yano, H. Takahashi, H. Monden, K. Tanabe, Nippon Electric, Japan

6:00 p.m.-7:30 p.m.  Cocktails
THURSDAY, November 11, 1982

9:00 a.m.-10:15 a.m. PLENARY SESSION
Chairperson: Karl Martersteck, Bell Laboratories
Speaker: William O. Fleckenstein, Vice-President Operations Systems and Network Planning, Bell Laboratories

CHALLENGES IN SOFTWARE DEVELOPMENT
Speaker: Yukio Mizuno, Board of Directors and Senior Vice President, Nippon Electric Co., Ltd., Japan
SOFTWARE QUALITY IMPROVEMENT

10:15 a.m.-10:45 a.m. Break

SESSION 13: RAPID PROTOTYPING (10:45 a.m.-12:15 p.m.)
Chairperson: M. Zelkowitz, Institute for Computer Sciences and Technology, National Bureau of Standards
Panelists: (to be announced)

SESSION 14: IMPROVING QUALITY ASSURANCE (10:45 a.m.-12:15 p.m.)
Chairperson: L. Belady, IBM Thomas J. Watson Research Center
AUTOMATED SOFTWARE QUALITY ASSURANCE—H. M. Sneed, Software Engineering Service, Budapest
IMPACT OF A COMPUTER AIDED DEVELOPMENT SUPPORT SYSTEM ON SOFTWARE QUALITY AND RELIABILITY—R. J. Lauber, University of Stuttgart, Germany

SESSION 15: COMMUNICATIONS: PROTOCOLS AND PROCESSING (10:45 a.m.-12:15 p.m.)
Chairperson: C. J. Graff, Communications Electronics Command, U.S. Army
SPECIFICATION AND VALIDATION OF THE TRANSMISSION CONTROL PROTOCOL USING TRANSMISSION GRAMMARS—L. D. Umbaugh and M. T. Liu, Ohio State University; C. J. Graff, Communications Electronics Command, Ft. Monmouth
COMMUNICATIONS PROTOCOL SYNTHESIS—C. V. Ramamoorthy and S. T. Dong, University of California, Berkeley
ACHIEVABLE DECENTRALIZED CONTROL FOR FUNCTIONS OF A DISTRIBUTED PROCESSING OPERATING SYSTEM—J. A. Stankovic, University of Massachusetts

SESSION 16: ROBOTICS AND COMPUTER AIDED MANUFACTURING (10:45 a.m.-12:15 p.m.)
Chairperson: L. Siklosy, University of Illinois at Chicago Circle
DEVELOPMENT OF AN EXPLICIT ROBOT CONTROL LANGUAGE—K. G. Shin, G. P. Vukkadada, N. D. McKay, Rensselaer Polytechnic Institute
ON THE USE OF ABSTRACTIONS IN MANIPULATOR PROGRAMMING—G. Bruno, Politecnico di Torino, Italy
GROWTH-BASED STRATEGY FOR THE DEVELOPMENT OF PROCESS CONTROL INFORMATION SYSTEMS BY ENHANCED USER INVOLVEMENT—H. Trauboth, Institute für Datenverarbeitung in der Technik, West Germany

SESSION 17: OFFICE AUTOMATION (10:45 a.m.-12:15 p.m.)
Chairperson: B. W. Wah, Purdue University
A WORKSTATION FOR INTERACTION STYLES—T. T. Carey, University of Guelph, Canada
SCHEDULING OF MEETINGS IN OFFICE INFORMATION SYSTEMS—T. Kikuno, N. Yoshida, K. Sugihara and K. Arame, Hiroshima University, Japan
DISTRIBUTED CONTROL SOFTWARE FOR THE PHENICS COMPUTER NETWORK—Y. Kakuda, T. Kikuno, N. Yoshida and A. Murashige, Hiroshima University, Japan

SESSION 18: SOFTWARE DEVELOPMENT ENVIRONMENTS (2:00 p.m.-3:30 p.m.)
Chairperson: D. Tajima, Hitachi Software Engineering Co., Japan
DEVELOPMENT OF INFORMATION PROCESSING SYSTEMS SUPPORTED BY SOFTWARE ENGINEERING ENVIRONMENTS: STATE OF THE ART AND TRENDS—H. L. Hausen and M. Müllerberg, Institut für Software-Technologie, Gesellschaft für Mathematik und Datenverarbeitung, Germany
A SOFTWARE DEVELOPMENT SYSTEM SUPPORTED BY A DATABASE OF STRUCTURES AND OPERATIONS—K. Kanasaki, Software Development Center, Ricoh Co. Ltd., K. Yamaguchi and T. Kuni, University of Tokyo, Japan
SET OF EFFICIENT SYSTEMS DEVELOPMENT TECHNIQUES FOR UNIQUE CHARACTERISTICS OF VARIOUS TARGET SYSTEMS—Y. Nakamura, Fujitsu Ltd., Japan

SESSION 19: SOFTWARE QUALITY ASSURANCE (2:00 p.m.-3:30 p.m.)
Chairperson: T. S. Chow, Bell Laboratories, Naperville
Panelists: E. F. Miller, Software Research Associates
W. E. Howden, University of California at San Diego
B. C. Wonsiewicz, Bell Laboratories
R. W. Motley, IBM Corporation
R. M. Poston, Programming Environments, Inc.

SESSION 20: DISTRIBUTED DATABASES (2:00 p.m.-3:30 p.m.)
Chairperson: A. K. Arora, Illinois Institute of Technology
SYNCHRONIZATION TECHNIQUES BASED ON TWO PHASE LOCKING IN A DISTRIBUTED DATABASE SYSTEM: A PERFORMANCE EVALUATION STUDY—C. Thanos, E. Bertino and E. Carlesi, Istituto di Elaborazione della Informazione del CNR, Italy
CONFICT MODELS OF TWO PHASE LOCKING ALGORITHMS IN DISTRIBUTED DATABASES—V. O. K. Li, University of Southern California
TWO SURPRISE RESULTS IN PROCESSING SIMPLE QUERIES IN DISTRIBUTED DATABASES—C. T. Yu, C. C. Chang and Y. C. Chang, University of Illinois at Chicago Circle

SESSION 21: ROBOT VISION (2:00 p.m.-3:30 p.m.)
Chairperson: Y. T. Chien, National Science Foundation
SHAPE REPRESENTATION FOR INSPECTION AND PARTS ACQUISITION—M. Brady, Massachusetts Institute of Technology
APPLICATION OF DYNAMIC SCENE ANALYSIS TO ROBOTICS—M. O. Ward, Bell Laboratories, Holmdel, N. J.
A HIERARCHICAL MODEL DRIVEN VISION SYSTEM FOR SENSORY-INTERACTIVE ROBOTICS—E. W. Kent, National Bureau of Standards

SESSION 22: OFFICE PRODUCTIVITY ENHANCEMENT THROUGH VISUAL TOOLS (3:30 p.m.-4:00 p.m.)
Chairperson: T. Kuni, University of Tokyo, Japan
Panelists: M. Azuma, Nippon Electric Company, Japan
H. Kuni, Ricoh Company, Ltd., Japan
P. Peussa, Isoco Graphics
M. M. Zloof, IBM Thomas J. Watson Research Center

SESSION 23: SOFTWARE REQUIREMENTS ANALYSIS (4:00 p.m.-5:30 p.m.)
Chairperson: C. Davis, Ballistic Missile Defense Advanced Technology Center
A RIGOROUS APPROACH TO BUILDING FORMAL SYSTEM REQUIREMENTS—G. C. Roman, Washington University
SIMULATION OF AN IID DRIVEN REQUIREMENTS LANGUAGE—L. L. Cheng and Y. Yang, Carnegie-Mellon University; and M. L. Soffa, University of Pittsburgh

SESSION 24: SOFTWARE INSPECTIONS (4:00 p.m.-5:30 p.m.)
Chairperson: A. S. Ackerman, Bell Laboratories, Piscataway
Panelists: A. F. Ackerman, Bell Laboratories, Piscataway
R. G. Ebenau, RGE Methodologies, Inc.
M. Fagan, IBM Corp.
K. K. McCormick, ATT
R. Peele, First Union Computer Services
S. Perez, Metropolitan Life Insurance Co.
T. C. Pingel, Western Electric

3:30 p.m.-4:00 p.m. Break

12:15 p.m.-2:00 p.m. Lunch
SESSION 25: NETWORK PARTITIONING FOR DISTRIBUTED DATABASES (4:00 p.m.-5:30 p.m.)
Chairperson: B. Bhargava, University of Pittsburgh
Panelists: P.A. DeMaine, Ballistic Missile Defense Advanced Technology Center
H. Garcia, Princeton University
D. Ries, Computer Corporation of America

SESSION 26: PICTURE LANGUAGES AND INFORMATION RETRIEVAL (4:00 p.m.-5:30 p.m.)
Chairperson: K.S. Fu, Purdue University
A CLASSIFICATION ISSUE IN THE STUDY OF PICTURE LANGUAGES—T. Ichikawa and M. Hirakawa, Hiroshima University, Japan
PICTURE INFORMATION MEASURES FOR SIMILARITY RETRIEVAL—S.K. Chang, University of Illinois at Chicago Circle; and C.C. Yang, Aerospace Systems Division, Naval Research Labs
RETRIEVAL IMPROVEMENT BY THE INTERACTION OF QUERIES AND USER PROFILES—R.R. Korfhage and H. Chavarria-Garza, Southern Methodist University
A FRAMEWORK FOR SPECIFYING GEOGRAPHIC DATABASE APPLICATIONS—A. Meier, Swiss Federal Institute of Technology, Zurich, Switzerland

SESSION 27: TOPICS IN PROGRAMMING LANGUAGES (4:00 p.m.-5:30 p.m.)
Chairperson: D. Fife, Systems and Applied Sciences Corp.
PROGRAMMING LANGUAGES AND THE PROGRAMMING PROCESS—M.R. Levy, University of Victoria, Canada
SPECIFICATIONS FOR A TRANSPORTABLE PROGRAMMING LANGUAGE SYSTEM—P.A.D. de Maine and C.G. Davis, Ballistic Missile Defense Advanced Technology Center
THE DECOMPILATION OF COBOL-DML PROGRAMS FOR THE PURPOSE OF PROGRAM CONVERSION—L.M. Dorsey, Mobil Oil Co.; S.Y.W. Su, Database Systems Research and Development Center, University of Florida
AN APPROACH TO TRANSLATION OF PASCAL AUGMENTED WITH RECOVERY BLOCKS—K.H. Kim and S.M. Yang, University of S. Florida; T. Arai, Oregon State University

FRIDAY, November 12, 1982

9:00 a.m.-10:00 a.m. PLENARY SESSION
Chairperson: S.S. Yau, Northwestern University
Speaker: Robert J. Potter, Senior Vice-President and Chief Technical Officer, International Harvester
THE FACTORY IN YOUR FUTURE

SESSION 28: SOFTWARE TESTING AND VERIFICATION (10:30 a.m.-Noon)
Chairperson: M. Branstad, National Bureau of Standards
THE EFFECTIVENESS OF DESIGN AND CODE WALKTHROUGHS—J. Hart, Sperry Univac
ON THE EFFECTIVENESS OF THE PARTITION ANALYSIS METHOD—D.J. Richardson and L.A. Clarke, University of Massachusetts

SESSION 29: SOFTWARE PROJECT MANAGEMENT (10:30 a.m.-Noon)
Chairperson: N. Maresolo, Western Electric
A MODEL OF SOFTWARE PROJECT MANAGEMENT DYNAMICS—T.K. Abdel-Hamid and S.E. Madnick, Massachusetts Institute of Technology
SOFTWARE DEVELOPMENT EFFORT ESTIMATION STUDY—A MODEL FROM CAD/CAM SYSTEM DEVELOPMENT EXPERIENCES—M. Okada and M. Azuma, Nippon Electric Company Ltd., Japan
A DEVELOPMENT AND TESTING ENVIRONMENT TO IMPROVE SOFTWARE PRODUCTIVITY—T.R. Spacek and C.R. Meacham, Bell Laboratories, Murray Hill

SESSION 30: RELATIONAL IMPLEMENTATION ISSUES (10:30 a.m.-Noon)
Chairperson: C.R. Carlson, Standard Oil Indiana
QUERYING RELATIONAL VIEWS OF NETWORKS—A. Rosenthal and D. Reiner, Sperry Research Center
A NEW HEURISTIC FOR GENERATING SEMI-JOIN PROGRAMS FOR DISTRIBUTED QUERY PROCESSING—P.A. Black and W.S. Luk, Simon Fraser University, Canada
RELATIONAL DATABASES WITH PARTIALLY FORMATTED RECORDS—S. Osborn, University of Western Ontario, Canada

SESSION 31: ROBOTICS COMPUTER VISION (10:30 a.m.-Noon)
Chairperson: R. Nagel, Lehigh University
ROBOT INTELLIGENCE—M. Wesley, IBM Thomas J. Watson Research Center
COMPUTER VISION FOR INSPECTION AND ROBOT CONTROL—R.C. Gonzalez, University of Tennessee
ROBOT ARM KINEMATICS, DYNAMICS AND CONTROL—G. Lee, University of Michigan

SESSION 32: LANGUAGE-BASED EDITORS-INTERPRETERS (10:30 a.m.-Noon)
Chairperson: G. Lyon, National Bureau of Standards
Panelists: C. Fischer, University of Wisconsin, Madison
P. Henderson, State University of New York, Stonybrook (Additional panelists to be announced)

Noon-1:30 p.m. Break

SESSION 33: AUTOMATION TO SUPPORT SOFTWARE TESTING AND VERIFICATION (1:30 p.m.-3:00 p.m.)
Chairperson: A. Davis, GTE Laboratories
A PARTIALLY AUTOMATED METHOD FOR TESTING INTERACTIVE SYSTEMS—H. Gomaa, S. Martello, General Electric Co.
AN AUTOMATED PASCAL TEST COVERAGE ASSESSMENT TOOL—J. Collofello, Arizona State University; G. Klinkel, Motorola Microsystems
VERIFYING ONGOING BEHAVIOR: A CASE STUDY—F. Furtek, Charles Stark Draper Laboratory, Inc.

SESSION 34: SPECIAL TOPICS (1:30 p.m.-3:00 p.m.)
Chairperson: C.V. Ramamoorthy, University of California, Berkeley
FUNCTOR: CONTROL = INTER-PROCESS CONTROL + INTRA-PROCESS CONTROL—M. Ohba and Y. Tanitsu, IBM Japan Ltd.
PROBABILISTIC MODELLING OF BRANCH AND BOUND ALGORITHMS—B.W. Wah and C.F. Yu, Purdue University
THE UNIVERSITY AND THE INDUSTRY: A CASE HISTORY OF THE BRAZILIAN DEVELOPMENT IN COMPUTER TECHNOLOGY—P.M.B. Franca, J.F. Marinho de Araujo and E.A. Schmitz, Federal University of Rio de Janeiro, Brazil
EXPERT SYSTEMS: STATUS AND PERSPECTIVES—V.P. Kobler, Ballistic Missile Defense Advanced Technology Center; B.G. McDaniel, Systems Control Technology, Inc.

SESSION 35: RELATIONAL DATABASE SYSTEMS (1:30 p.m.-3:00 p.m.)
Chairperson: P. Scheuermann, Northwestern University
ON INTERACTIONS IN MULTIPLE VIEW ENVIRONMENTS—A.K. Arora, Illinois Institute of Technology; C.R. Carlson, Standard Oil Indiana
EQUIVALENCE OF ENTITY-RELATIONSHIP DIAGRAMS—S. Jajodia and P.A. Ng, University of Missouri, Columbia
CAPTURING ILL-STRUCTURED INFORMATION IN RELATIONAL DATABASE SYSTEMS—L.J. Henschen, Northwestern University; S.A. Naqvi, Bell Laboratories, Murray Hill

SESSION 36: ROBOTICS AND INDUSTRIAL AUTOMATION (1:30 p.m.-3:00 p.m.)
Chairperson: N. Caplan, National Science Foundation
Panelists: R.C. Gonzalez, University of Tennessee
G. Lee, University of Michigan
R. Nagel, Lehigh University
R. Paul, Purdue University
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