**Compcon Week**

three outstanding events in one professional week

**Monday, September 8, 1975**
**TWO PRE CONFERENCE TUTORIALS**
Full-day parallel sessions on "Structured Programming" and "Protection of Information in Computer Systems"

**Tuesday—Thursday, September 9—11, 1975**
**COMPCON 75 FALL**
The IEEE Computer Society's own international conference on the theme "How to Make Computers Easier to Use"

**Thursday and Friday, September 11—12, 1975**
**FIRST NATIONAL CONFERENCE ON SOFTWARE ENGINEERING**
Immediately follows Compcon...co-sponsored by the National Bureau of Standards and the Computer Society

All at the Mayflower Hotel in Washington, D.C.
Rather than the customary single tutorial offered the day before the conference proper, two full-day sessions running in parallel are scheduled. Both are subjects closely related to the main conference theme of "Making Computers Easier to Use," as well as being directly relevant to the First International Conference on Software Engineering which immediately follows Compcon 75 Fall.

**PROTECTION OF INFORMATION IN COMPUTER SYSTEMS**
Drs. David D. Clark and David D. Redell of MIT's Project MAC

**STRUCTURED PROGRAMMING**
Dr. Victor R. Basili
University of Maryland at College Park
Mr. Terry Baker
IBM Federal Systems Center
PROTECTION OF INFORMATION IN COMPUTER SYSTEMS

COURSE OUTLINE:
- Basic principles of information protection, including considerations surrounding the study of protection and technical underpinnings.
- Separation of addressing and protection, the capability system, the access-control list system, protecting various types of objects, and protected objects and subsystems.
- The state of the art, current research directions, and concluding remarks.

INSTRUCTORS:

David Clark
A research associate, Dr. Clark has been with the Computer Systems Research Division of Project MAC for the past seven years. During this period he has contributed to the design of many parts of the Multics operating system, a system with advanced features for protection of information. Dr. Clark received his BS from Swarthmore College in 1966 and his MS and PhD from MIT in 1968 and 1973.

David Redell
Dr. Redell, also affiliated with Project MAC, joined the faculty of the Department of Electrical Engineering and Computer Science at MIT in 1974. His current research interests include operating systems, protection, machine architecture, and system programming languages. Dr. Redell received his BA, MA, and PhD degrees from the University of California at Berkeley.

STRUCTURED PROGRAMMING

COURSE OUTLINE:
- Introduction to the major ideas of structured programming, their theoretical and practical foundations.
- Development of a major application program system, together with the quality and productivity results experienced.
- Detailed presentation of the development of a single program, stressing the top-down evolutionary character of the process.
- Concluding summary, the advantages and disadvantages of SP ideas as observed through their installation use by a large programming organization.

INSTRUCTORS:

Victor Basili
Dr. Basili has been on the computer science faculty at the University of Maryland at College Park since 1970; his major interests are the design, modeling, and implementation of programming languages. His major language development efforts have been the graph algorithmic language GRAAL and the SIMPL family of programming languages and compilers.

Mr. Baker, manager of the NSDG Development in the Federal Systems Center, is responsible for the development of a software system for newspaper production for a consortium of eight major newspapers. With IBM since 1956, he has held numerous positions; most recently he was manager of the Development Tools Department, responsible for the guidelines, tools, and support necessary for the introduction of programming support libraries, structured programming, top-down programming, and chief programmer teams at the center.

Terry Baker
Baker received his BS in mathematics from Yale University and his MS in applied mathematics from Harvard University.

REGISTRATION FOR TUTORIALS AND CONFERENCES ON LAST PAGE

BOTH TUTORIALS START
9:00 AM, MONDAY, SEPTEMBER 8, 1975
TUESDAY September 9, 1975

9:30 SESSION 1: KEYNOTE SESSION
Opening Ceremony
Richard E. Merwin, COMPCON 75 FALL General Chairman
Lynn Hopewell, COMPCON 75 FALL Program Chairman
Stephen S. Yau, President, IEEE Computer Society
Keynote Address
The Hon. Barry Goldwater Jr., U.S. House of Representatives

TUESDAY MORNING (Parallel Sessions)

11:00 SESSION 2: HARDWARE
Chairman: Joseph Wylen, Burroughs Corporation
"A RATIONALE FOR RANDOM TESTING COMBINATIONAL DIGITAL CIRCUITS," John J. Shedletsky, Stanford University
"DESIGN OF FAIL-SAFE SYNCHRONOUS SEQUENTIAL CIRCUITS BY EXPLICIT STATE TRAPPING," Alan M. Usas, Stanford University
"ARITHMETIC ERROR CORRECTIONS IN BCD SYSTEM," C. K. Liu and T. L. Wang, Bell Telephone Laboratories

11:00 SESSION 3: INNOVATIVE APPROACHES TO SYSTEMS AND HARDWARE
Chairman: Jack Lynch, Burroughs Corporation
"DISTRIBUTED PROCESSOR DESIGN FOR AVIONIC APPLICATION," Michael Moore, Air Force Avionics Lab, Wright-Patterson A.F.B.
"A HARDWARE INDEPENDENT RESOURCE SHARING MECHANISM," George Cowan, Burroughs Corporation
"1980 ARCHITECTURE FOR LARGE SCIENTIFIC PROBLEMS," Joseph Wirsching, Consultant

11:00 SESSION 4: PRIVACY AND SECURITY
Chairman: Michael Munter, General Services Administration
"HOW TO IMPLEMENT SYSTEMS WHICH COMPLY WITH THE PRIVACY ACT OF 1974," Robert Goldberg, Harvard University
"TECHNICAL PRINCIPLES OF COMPUTER SECURITY," G. Popek, U.C.L.A.

TUESDAY AFTERNOON (Parallel Sessions)

2:00 SESSION 5: MICROPROGRAMMING
Chairman: Gary L. Kretz, IBM
"A MICROPROGRAMMED ENVIRONMENT FOR A SOFTWARE DEVELOPMENT SYSTEM," Charles W. Flink II, Naval Surface Weapons Center/Dahlgren Laboratory
"MPL-80A, A HIGH-LEVEL MICROPROGRAMMING LANGUAGE COMPILER," Carol J. Lane and M. R. Ito, University of British Columbia

2:00 SESSION 6: ARE BIG MACHINES NECESSARY?
Chairman: Mario J. Gonzalez, Jr., Northwestern University
"CENTRALIZED OR DECENTRALIZED COMPUTING - OR MAYBE SOME OF BOTH?" R. L. Ashenhurst, University of Chicago
"ARE MINICOMPUTERS SUITABLE FOR LARGE SCALE SCIENTIFIC COMPUTATIONS?" Harry F. Schaefer, University of California, Berkeley
"WHY NOT A MINI IN EVERY CUPBOARD?" David P. Jasper, Control Data Corporation

2:00 SESSION 7: OPERATING SYSTEMS
Chairman: Dr. John Benoit, The MITRE Corporation
"CONSTRUCTION OF PRIMITIVES FOR A MULTIPROCESS ENVIRONMENT," C. R. Hollander, Stanford University
"DYNAMIC SCHEDULING OF TASKS REQUIRING MULTIPLE PROCESSORS," A. Thomasian and A. Avizienis, U.C.L.A.
"A COMPARISON OF MEMORY ALLOCATION STRATEGIES FOR PARALLEL PROCESSING SYSTEMS," C. V. Rammamoorthy, University of California, Berkeley, and David Pesel, University of Rochester

WEDNESDAY September 10, 1975

WEDNESDAY MORNING (Parallel Sessions)

9:00 SESSION 11: COMPUTER NETWORK SOFTWARE
Chairman: Nathan Teichholz, DEC
"COMPUTER NETWORKS CAN BE FRIENDLY," Shane Dickey, Hewlett Packard Data Systems
"A USER-ORIENTED MINICOMPUTER NETWORK," William J. Lennon, Northwestern University
"DISTRIBUTED COMPUTING: A MODULAR APPROACH TO COMPLEX SYSTEMS," Nathan Teichholz, DEC

9:00 SESSION 12: MEDICAL APPLICATIONS
Chairman: Thomas L. Lewis, National Institutes of Health
"AN INTRODUCTION TO THE PROCESSING OF CARDIAC LEFT VENTRICULAR FUNCTION DATA," H. Covvey, S.G. Boughner, R.W. Johnstone and E.D. Wigle, Toronto General Hospital
"THE FOLLOW-UP OF CARDIAC PACEMAKER PATIENTS WITH A MINICOMPUTER SYSTEM: TWO YEARS EXPERIENCE," B.S. Goldman, E.J. Noble, S.G. Boughner and E.D. Wigle, Toronto General Hospital
"COMPUTING IN A DEPARTMENT OF PSYCHIATRY: THE 3X10^6 MICROSECOND HOUR," G.F.D. Hetelaine, P. Stenn, and D. Evans, University Hospital, London, Ontario
"DATA MANAGEMENT IN A HOSPITAL ENVIRONMENT, A MINICOMPUTER SYSTEM," R. Cheng, C. Scase, J. Gruer and M. Bennett, University Hospital, London, Ontario

9:00 SESSION 13: MICROPROCESSORS I
Chairman: Jonathan A. Titus, TYCHON, Inc.
"MICROCOMPUTERS - HOW TO PUT THEM TO WORK," David G. Larsen and Peter R. Rony, Virginia Polytechnic Institute and State University
"AN INTEGRATED HARDWARE-SOFTWARE MICROPROCESSOR DEVELOPMENT SYSTEM," D. R. Deuel and J. W. Gault, North Carolina State University
"OPERATING SYSTEM SOFTWARE INTERFACES FOR A MICROPROCESSOR," Alex Sidlone, Honeywell

11:00 SESSION 14: COMPUTER NETWORK: A USER'S VIEWPOINT
Chairman: Gene Raitelherr, The MITRE Corporation
"RESOURCE MARKET FOR USER COHERENT KNOWLEDGE," Douglas Englebart, Stanford Research Institute
"COLLABORATION SUPPORT," J. Eagle and J. Iseli, The MITRE Corporation
"INTELLIGENT TERMINAL AND NETWORKS," Robert Anderson, Rand Corporation
11:00 SESSION 15: COMPUTER AIDED INSTRUCTION
Chairman: Charles M. Goldstein, Lister Hill National Center for Biomedical Communications, Department of HEW
"MAKING COMPUTERS EASIER TO USE THROUGH DISTRIBUTED MINI/MICRO PROCESSORS: PILOT," John Starkweather, UC Medical School, San Francisco
"SPECIALIZED TERMINAL AND NETWORK: PLATO," Thomas Chen, University of Illinois
"GRAPHICS AND SPECIALIZED USER COMMANDS: TICCITT," C. Victor Bunderson, Brigham Young University
"ANALYSIS OF VERBAL COMMUNICATION IN A CAI ENVIRONMENT," Jane B. Hirsch and Martin Hamburg, Cornell University College of Medicine

THURSDAY September 11, 1975
THURSDAY MORNING (Parallel Sessions)
9:00 SESSION 22: PATTERN RECOGNITION
Chairman: Laveen Kanal, University of Maryland
"MAKING COMPUTERS EASIER TO USE IN BIOMEDICINE," Judith Prewitt, NIH
"INTERACTIVE PATTERN ANALYSIS," Laveen Kanal, University of Maryland
"USING COMPUTERS IN REMOTE SENSING," Michael Hord, Earth Satellite Corporation
"AUTOMATION OF INVESTMENT ANALYSIS — A NEW HORIZON FOR APPLICATIONS OF ARTIFICIAL INTELLIGENCE," Jerry Felsen, University of Southwestern Louisiana

2:00 SESSION 18: GRAPHICS
Chairman: Ira W. Cotton, National Bureau of Standards
"COMPUTER GENERATED PICTURES OF GRAPHS," R. B. McGuire, University of Regina
"CALMA’S GML™ LANGUAGE: A PROGRAMMING LANGUAGE FOR CUSTOM TURNKEY GRAPHICS SYSTEMS," Carl Smith, CALMA
"ATS-6 CONTROL CENTER REAL-TIME GRAPHICS DISPLAYS," R. desJardins and J. Hahn, NASA/Goddard Space Flight Center

2:00 SESSION 19: DATA BASE
Chairman: Thomas C. Lowe, National Bureau of Standards
"A CLOSED SYSTEM OF REPRESENTATION FOR RELATIONALLY-ORGANIZED DATA AND ITS DESCRIPTORS," Clifford R. Hollander, Stanford University
"AN EFFICIENT IMPLEMENTATION OF CODD’S RELATIONAL MODEL DATA BASE," Leon E. Winslow, Wright State Univ.
"A BENCHMARK TEST APPROACH FOR GENERALIZED DATA BASE SOFTWARE," Elizabeth Fong, National Bureau of Standards

4:00 SESSION 20: APPLICATION AUTOMATION
Chairman: N. J. Denil, IBM
"SOFTWARE ORGANIZATION FOR A MULTI-PURPOSE DESIGN SYSTEM," Robert J. Smith II and Mathew N. Matelan, Lawrence Livermore Laboratory, University of California
"AN AUTOMATIC PROGRAM DESIGN AND GENERATION SYSTEM FOR MINI COMPUTER BASED DATA COMMUNICATION SYSTEMS APDC," N. Sugura, T. Hayashi and M. Yasuoka, OKI Electric Industry Co., Ltd.
"THE AUTOMATIC TRANSFORMATION OF A SPECIFIC NATURAL LANGUAGE IN A FORMALIZED METALANGUAGE," E. Vaccari, Institute de FISICA

4:00 SESSION 21: HARDWARE DEVELOPMENT TOOLS
Chairman: John A. Darringer, IBM
"AN ARCHITECTURAL DEVELOPMENT TOOL FOR THE IBM SYSTEM/INTERMEDIATE LANGUAGE MACHINE (S/ILM)," Tony Carpino, IBM

"STRUCTURED CONTROL OPERATORS IMPLEMENT ON THE IBM SYSTEM/INTERMEDIATE LANGUAGE MACHINE (S/ILM)," J. P. Dorocak, IBM
"A QUASI PARALLEL HARDWARE LANGUAGE EMULATED BY AN HOST HIGH LEVEL LANGUAGE," Gerard L. M. Noguez, Universite PARIS

WEDNESDAY AFTERNOON (Parallel Sessions)
2:00 SESSION 17: COMMUNICATIONS
Chairman: Robert F. Decker, Systems Research and Development Service
"THE STRUCTURE OF SPECIAL COMPUTER IN SWITCHING PACKETS," J. Cabanel, J. P. Lasage and Philippe Puech, Universite Paul Sabatier
"ARAMIS — A PROCESSING NETWORK WITH USER DATA BASES INTERACTIVE SYSTEMS," J. P. Lasage, G. Artaud, and J. Cabanel, Universite Paul Sabatier
"A PACKET SWITCHING NETWORK FOR MINICOMPUTERS," David M. McKeown, Jr. and F. H. Orther, George Washington University Medical Center
"A MICROPROCESSOR CONTROLLED DATA SWITCH," Robert C. Chen, Peter G. Jesse and R. Patterson, The Moore School of Electrical Engineering

2:00 SESSION 23: PERFORMANCE MEASUREMENT
Chairman: Philip J. Kiviat, Federal Computer Performance Evaluation & Simulation Center
"PRACTICAL CONSIDERATIONS FOR COMPUTER SYSTEM MODELING," Jeffrey Buzen, Harvard University
"A MODEL FOR WORKLOAD CHARACTERIZATION," A. K. Agrawala and J. M. Mohr, University of Maryland
"ENGINEERING EVALUATION OF A MULTIPROGRAMMED COMPUTER SYSTEM," Y. V. Reddy, West Virginia University

2:00 SESSION 24: GENERAL SYSTEMS
Chairman: Gilbert Held, U. S. Postal Service
"ENGINE CONSTRUCTION: THE MICROPROGRAMMED DESTRUCTION OF HIGHER-LEVEL LANGUAGES," Michael J. Viehman, TETRA Tech., Inc.

4:00 SESSION 25: VOICE RESPONSE
Chairman: Donald A. Biggar, Systems Development Corporation
"AUTOMATIC SPEECH UNDERSTANDING SYSTEMS," H. B. Ritea, System Development Corporation
"AUTOMATIC SPEECH RECOGNITION EXPERIMENTS," G. M. White, XEROX Palo Alto Research Center
"RECOGNITION OF CONTINUOUS SPEECH," J. K. Baker, L. R. Bahl and F. Jelinek, IBM

4:00 SESSION 26: SOFTWARE TECHNOLOGY FORECAST: 1975-1985
Chairman: Paul Willis, TELEDYNE — Geotech Laboratories
"SOFTWARE AREAS NEEDING FORECASTS," Paul Willis, TELEDYNE — Geotech Laboratories
"FUTURE OF HIGH LEVEL LANGUAGES," H. Maisel and A. Tucker, Georgetown University

11:00 SESSION 27: (PANEL) DISTRIBUTED ARCHITECTURE: WHERE ARE WE GOING?
Chairman: David Farber, University of California at Irvine
Panelists: TO BE ANNOUNCED
FIRST NATIONAL CONFERENCE ON SOFTWARE ENGINEERING

Sponsored by
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Chairman: Harlan Mills, IBM
Vice-Chairman: Dennis Fife, National Bureau of Standards
Program Chairman: Tom Steel, Equitable Life Assurance Society

SEPTEMBER 11 and 12, following COMPCON FALL '75 at the Mayflower Hotel, Washington, D.C.

THURSDAY September 11, 1975

THURSDAY MORNING
8:30 - 9:30: REGISTRATION
9:30 - 10:30: OPENING SESSION
   Chairman: Harlan Mills, IBM
   Keynote Speaker: Frederick P. Brooks, Jr., University of North Carolina
11:00 - 12:00: CONCEPTS
   Chairman: M. Marcotty, General Motor Research Laboratories
   "A TOP-DOWN VIEW OF SOFTWARE ENGINEERING," A. I. Wasserman, University of California, San Francisco
   "SOFTWARE TOOLS," B. Kernighan and P. J. Plauger, Bell Telephone Laboratories, Murray Hill, New Jersey

THURSDAY AFTERNOON
1:30 - 3:00: TOOLS
   Chairman: B. Liskov, MIT
   "THE COLUMBUS APPROACH," Jan Witt, Siemens Ag., Munich, Germany
   "SOFTWARE MONITORS AIDING SYSTEMATIC TESTING AND THEIR OPTIONAL PLACEMENT," C. V. Ramamoorthy, University of California, Berkeley, K. H. Kim, University of Southern California
   "STRUCTURED PROGRAMMING ANALYSIS SYSTEM," J. E. Stockenberg and Andries van Dam, Brown University

3:30 - 5:00: DEVELOPMENT PROCESS CONTROL
   Chairman: Donald J. Reifer, Aerospace Corporation
   "THE SOURCE CODE CONTROL SYSTEM," Marc J. Rokkind, Bell Telephone Laboratories,
   "PREDICTING PROGRAMMING GROUP PRODUCTIVITY - A COMMUNICATION MODEL," R. F. Scott and D. B. Simmons, University of Texas
   "AN EXPERIMENTAL PROGRAM TESTING FACILITY," Richard E. Fairley, Texas A&M University

FRIDAY September 12, 1975

FRIDAY MORNING
9:00 - 10:00: EXPERIENCE
   Chairman: Robert C. McHenry, IBM
   "ITERATIVE ENHANCEMENT: A PRACTICAL TECHNIQUE FOR SOFTWARE DEVELOPMENT," Victor R. Basili and Albert J. Turner, University of Maryland
   "PROGRAM DESIGN BY A MULTIDISCIPLINARY TEAM," Susan Voigt, NASA, Langley Research Center
   "APPLIED SOFTWARE ENGINEERING: A REAL-TIME SIMULATOR CASE HISTORY," S. R. McCammon, RCA Missile and Surface Radar Division
10:30 - 12:00: METHODOLOGY
   Chairman: John Gosden, Equitable Life Insurance Co.
   "STRUCTURED PROGRAMMING AND FORMAL SPECIFICATION," R. Noonan, University of Maryland
   "SOFTWARE PERFORMANCE MODELING USING COMPUTATION STRUCTURE," Howard A. Shool and Taylor L. Booth, University of Connecticut
   "TOP-DOWN, BOTTOM-UP AND STRUCTURED PROGRAMMING," C. L. McClure, Illinois Institute of Technology

FRIDAY AFTERNOON
1:30 - 3:00: SUMMARY PANEL
   Chairman: Raymond Yeh, University of Texas
   Panelists: M. Marcotty, General Motors Research Laboratories
   B. Liskov, MIT
   Donald J. Reifer, Aerospace Corporation
   J. Gosden, Equitable Life Insurance Co.
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STUDENT DISCOUNT available for COMPCON ONLY (Fee: $25). To receive a discount, students must be IEEE Student Members and must register at the door.

NOTE: Requests for refunds must be received in writing no later than September 1, 1975.
- TUTORIAL registration fee includes luncheon and bound text.
- COMPCON registration fee includes one copy of the Digest of Papers, and provides you with 2 complimentary drink tickets for each of the COMPCON hosted parties, Tuesday and Wednesday nights.
- SOFTWARE ENGINEERING registration fee includes one copy of the conference proceedings.

LATE REGISTRATIONS will be accepted at the Mayflower Hotel beginning Sunday evening, September 7, 1975.

IEEE or IEEE COMPUTER SOCIETY Membership Number

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