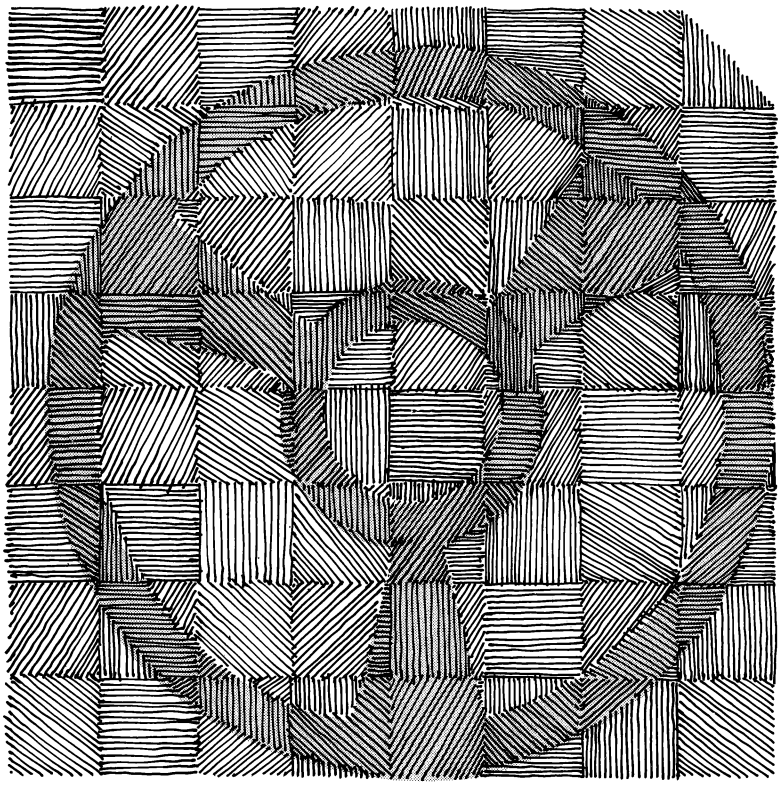
Department of Computer Science



Kansas State University

Education and Research in Computer Sciences

A RESUME

CONTENTS

KSU KANSAS STATE UNIVERSITY

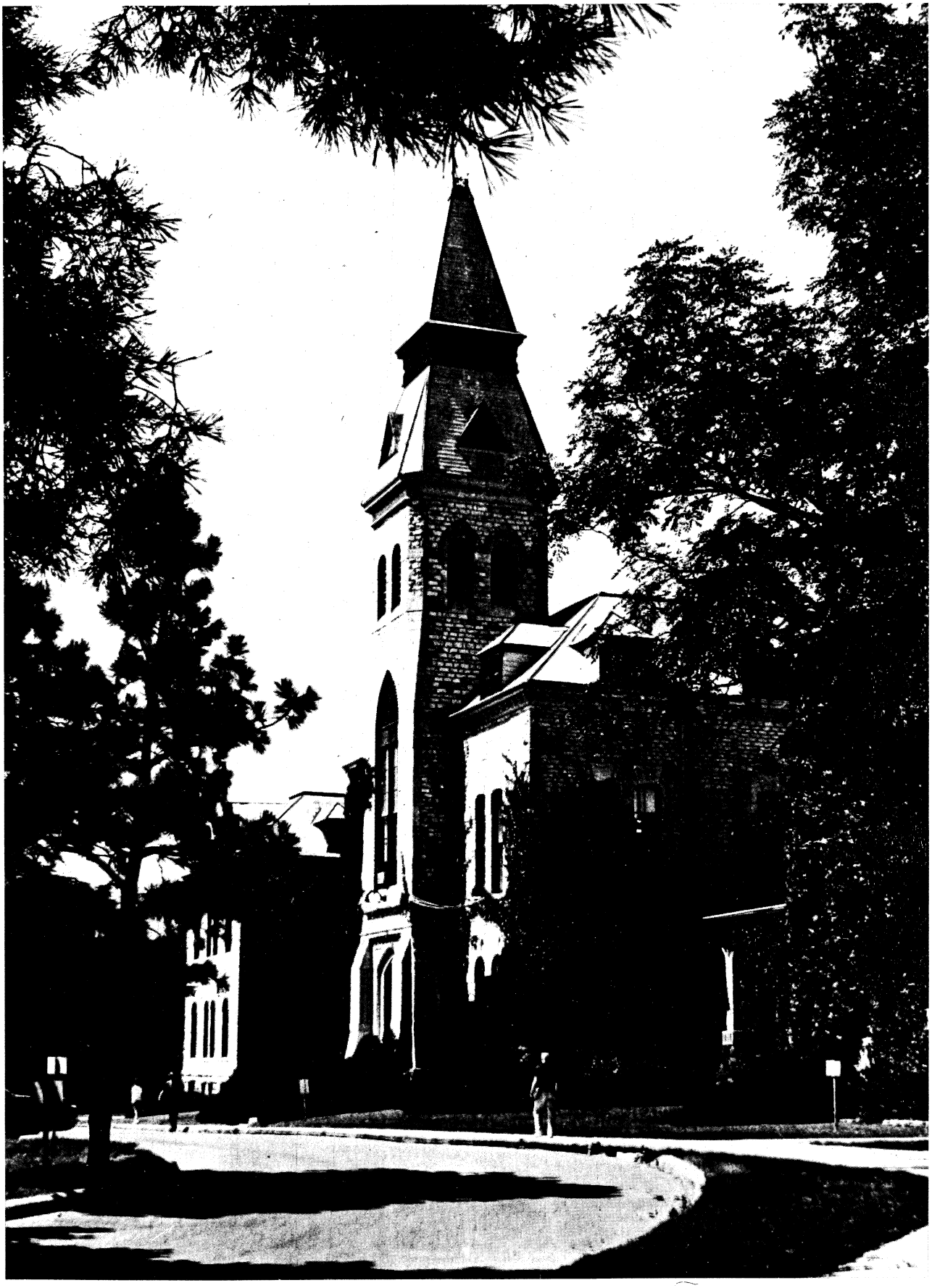
Department of Computer Science
Manhattan, Kansas 66506

The purpose of this brochure is to provide a description of the research capabilities of the Department of Computer Science, Kansas State University. Our capabilities as concerns education are fully described in the University's General Catalog. The Department offers a full spectrum of education in computer science to both graduate and undergraduate students. Research within the Department is complementary to the graduate student training.

The objective of our department research is to advance the boundary of knowledge in applied and theoretical computer science. Our fields of effort are not fixed but tend heavily toward the applied fields of computer science. The faculty and graduate students continually probe that boundary with exploratory techniques as they seek to further expand the science of computer usage.

Your interest in our department is greatly appreciated.

Paul S. Fisher
Head



EDUCATION AND RESEARCH IN COMPUTER SCIENCE

A
RESUME

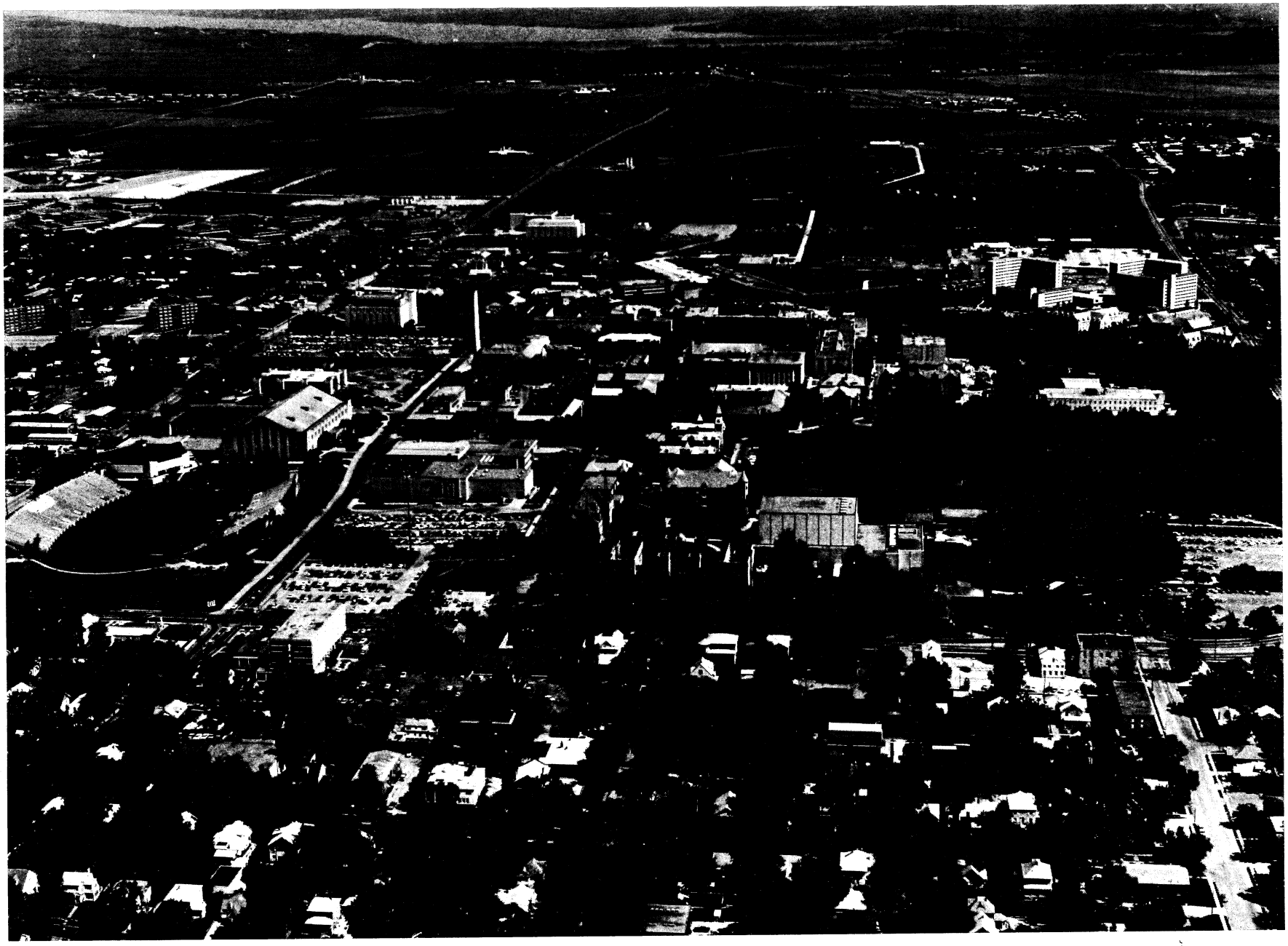
KANSAS STATE UNIVERSITY

Kansas State University, Manhattan, Kansas, is the oldest land-grant college in the United States. It has grown from 52 students enrolled on September 2, 1863 to more than 16,000 students in 1975 to become one of the major educational institutions in America. K-State is fully accredited by the North Central Association of Colleges.

Launched as a primarily agricultural school, K-State has evolved into an important scientific and cultural university. Its primary thrust is still in the field of Agricultural Education and Research and KSU is known internationally for its contributions to crop and animal science and to agricultural economics and engineering. The university is also renowned for its contributions to the applied sciences and the majority of KSU students seek degrees in the disciplines of the applied sciences.

The University awards degrees of Bachelor of Arts, Science, Architecture and Music; Master of Arts, Science, Business Administration, Landscape Architecture, Music and Regional/Community Planning; and Doctor of Philosophy in 33 fields of study including Doctor of Veterinary Medicine. There are 60 academic departments on the campus and a Division of Continuing Education extends the University's educational services to more than 10,000 off-campus students. The KSU Agricultural Experiment Station conducts research on more than 7,000 acres of crop and grass lands in support of the University's training and research programs. In cooperation with the Atomic Energy Commission the University operates one of the major facilities for accelerating atomic particles. The Nuclear Engineering Department operates a TRIGA MKII nuclear reactor.

The 153-acre campus is located at Manhattan, Kansas, a city of 26,000 people. The city is located 120 miles west of Kansas City, Missouri, on the Kansas River, and 14 miles from the historic military reservation of Fort Riley. Access to Manhattan may be by Frontier and Capital Air Lines out of Kansas City International Airport or by car, Interstate Highway 70, 8 miles south of the city. Popular motels are located in the city and provide national standard and deluxe accommodations for visitors.

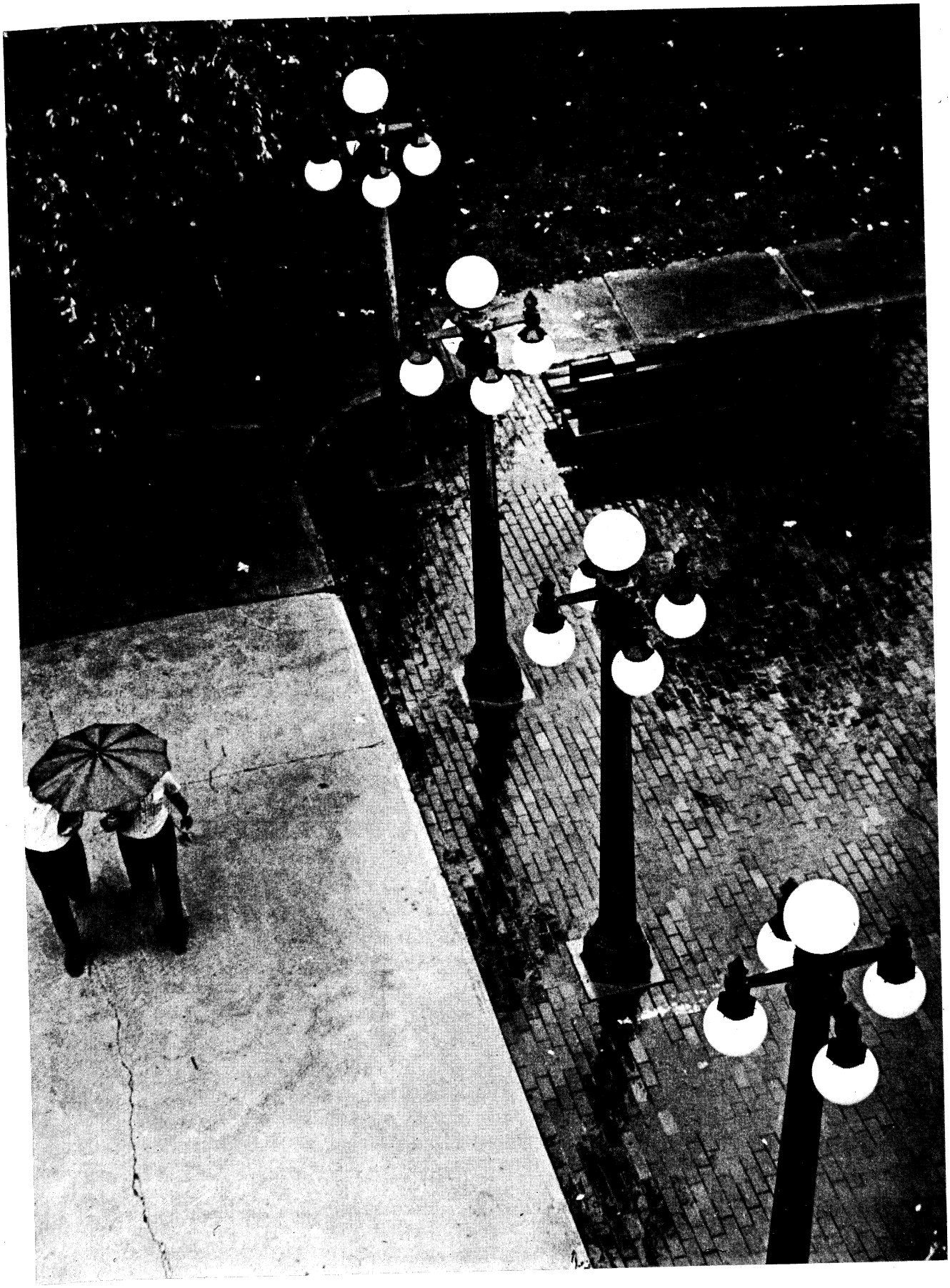


DEPARTMENT OF COMPUTER SCIENCE

The Computer Science Department, College of Arts and Sciences is in its second decade of service to the University. Since 1972, the Department has offered a degree of Doctor of Philosophy. In support of that offering, the Department has become increasingly active in Computer Science research and has built a dynamic research facility of hardware and people. Teaching, however, remains the Department's primary objective and a full undergraduate computer science curriculum is offered to the University students. In addition, the Department provides a number of off-campus courses to both undergraduate and graduate students at a number of locations. Off-campus teaching includes Old Trooper University at Ft. Riley, Kansas, Command and General Staff College at Ft. Leavenworth, Kansas, and Continuing Education at Kansas City, Missouri.

The Department has 9 full-time faculty (7 with PhD), and 4 part-time faculty (2 joint with the University Computing Center), and 15 graduate assistants. In addition, 15 faculty at the University of Kansas are adjunct in the PhD program. Currently, there are 35 Master's Degree students and 10 PhD students enrolled on campus. At Ft. Leavenworth, there are some 20 additional Master of Science students enrolled in the joint KSU-CGSC program.

The PhD program in Computer Science is offered jointly by KSU and the University of Kansas at Lawrence, Kansas. Although each University awards the PhD degree to its respective students, the joint arrangement makes the facilities, hardware, and personnel of both institutions available to students. In line with the founding philosophy of land-grant colleges, the thrust of effort at K-State is toward applied computer sciences. The thrust at the University of Kansas is toward formal theory of computer science. Accordingly, the research at KSU has been oriented towards practical and applied computing systems.



RESEARCH
COMPUTER SCIENCE DEPARTMENT, KSU

The Department supports faculty research and development activities as central to a strong graduate program. Faculty specialties include language and compiler design, operating systems techniques, computer architecture, software engineering, probabilistic system, numerical computation, models, computer graphics, image recognition, and computer systems simulation and evaluation. The Department offers a strong graduate emphasis in the area of software engineering which includes the design, management and documentation of large software projects. Recent emphasis has centered on computer networks, network interfaces, and distributed networks. This recent emphasis is a reaction to the expanding use of minicomputers and microcomputers in data processing systems and the proliferation of software problems attendant thereto.

Research is conducted primarily by faculty members assisted by graduate students. Significant research is done by PhD candidates under supervision of the faculty. Facilities available in support of research include the University Computing Center, the Department Computer Laboratory, the University of Kansas Computing Facility and the University library.

The Department's capabilities to support research are growing each year. The scope of capabilities is best illustrated by the partial list of graduate courses currently offered:

Microcomputer Programming and Applications
Minicomputer Systems
Software Engineering
Design Automation for Digital Systems
Computer Simulation
Artificial Intelligence
Theory of Parsing
Computer Graphics and Image Processing
Translator Design
Automata and Computability
Information Organization and Retrieval
Numerical Solutions to Partial Differential Equations
Operating Systems

COMPUTING RESOURCES AT KANSAS STATE UNIVERSITY

Computing resources at K-State include the University Computing Center, the Computing Laboratory, the University Data Processing Center, remote terminal processing to the facilities of the University of Kansas, and mini-computers located within the Departments of Electrical Engineering, Physics, and Chemistry. Almost from their date of conception, computers have been integral to the applied sciences teaching and research at K-State. Digital computer capabilities have been available at the University since March 1956. The University Computing Center was established in 1957 with an IBM 650 computer. The University's computing facilities have kept pace with the dynamic capabilities of the computing industry.

The Computing Center

The Computing Center is a service department of the University for the support of the research and instructional needs of the faculty, staff and students. The principal facility is an IBM 370/158 with one megabyte of main core and 500 megabytes of associated direct access storage. Users can access the computer through a combination of batch service, local terminal and several remote typewriter and card reading terminals. The facilities are shown in the schematic diagram on page 13.

Operating systems include:

OS/MFT DOS VM/370

Interactive systems

APL CAL CMS Coursewriter III

Languages

ALGOL-60	LISP 1.5	SPITBOL
BAL	PL/1	WATBOL
COBOL	PL/C	WATFIV
FORTRAN	SNOBOL4	

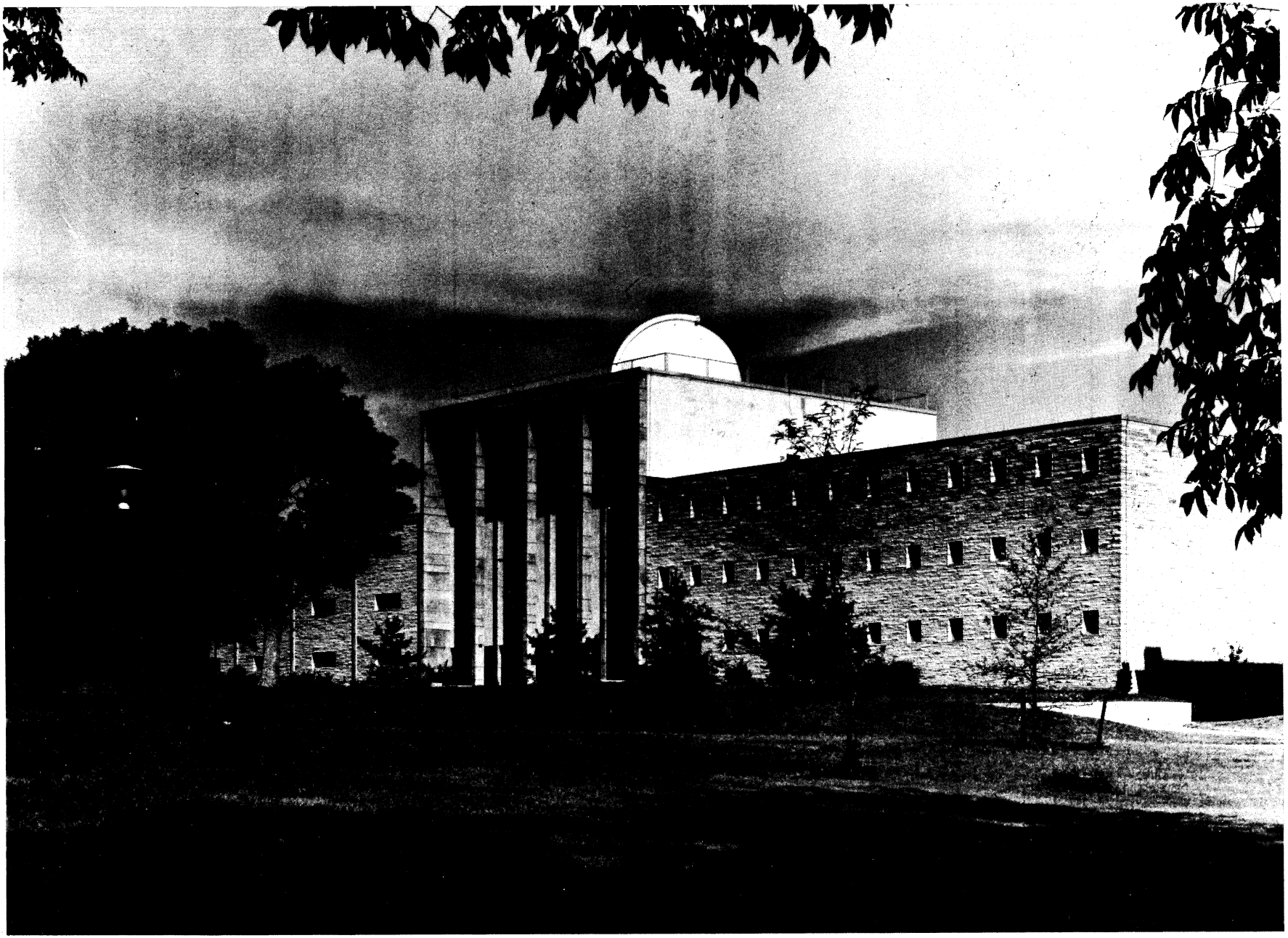
Applications

BMD	GPSS	PMS/360
CSMP	MPS/360	SPSS
FORMAC	NEATER2	

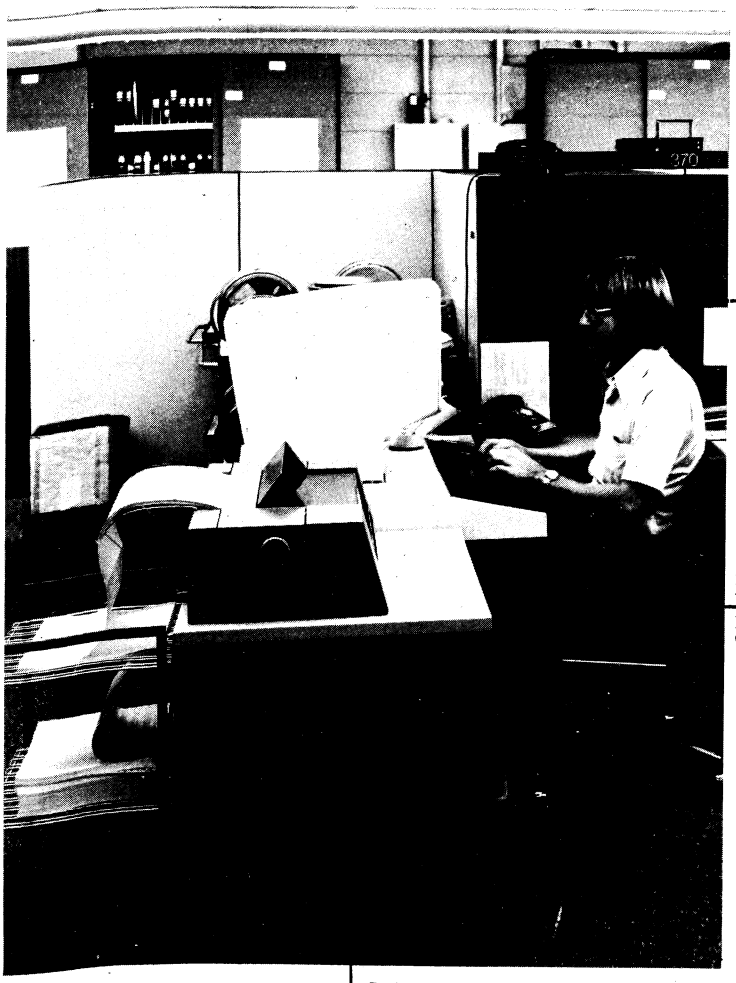
The Computing Laboratory

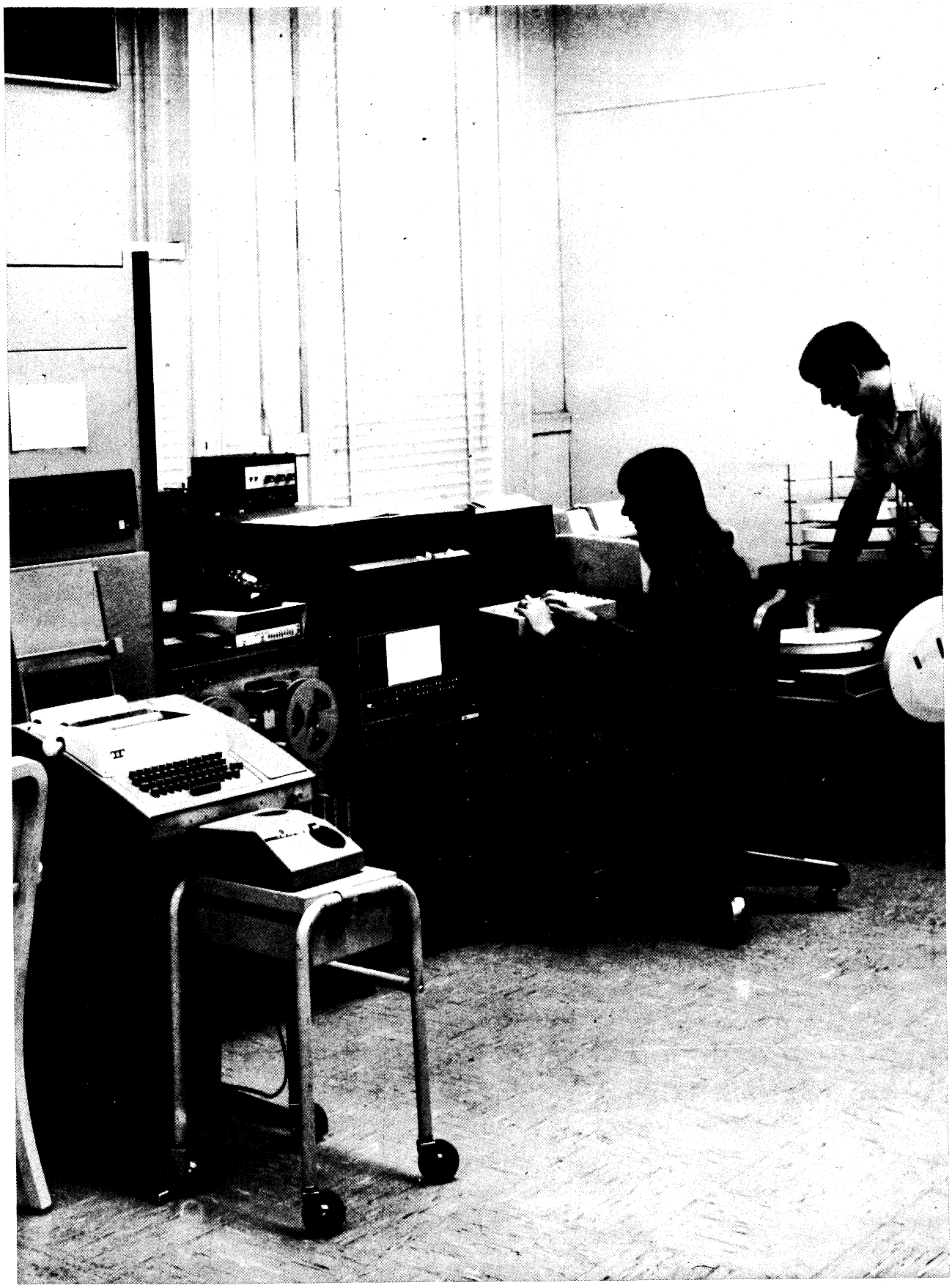
The Computing Laboratory is a facility of the Department of Computer Science and supports research and instructional requirements. The principal facilities of the Lab are three mini-computers. The three computers can operate individually, in a network, and in a link to the IBM 370/158 in the Computing Center. The facility permits the investigation and teaching of computer network techniques and the teaching and investigation of computer software in a relatively inexpensive but highly capable hardware environment. The hardware includes:

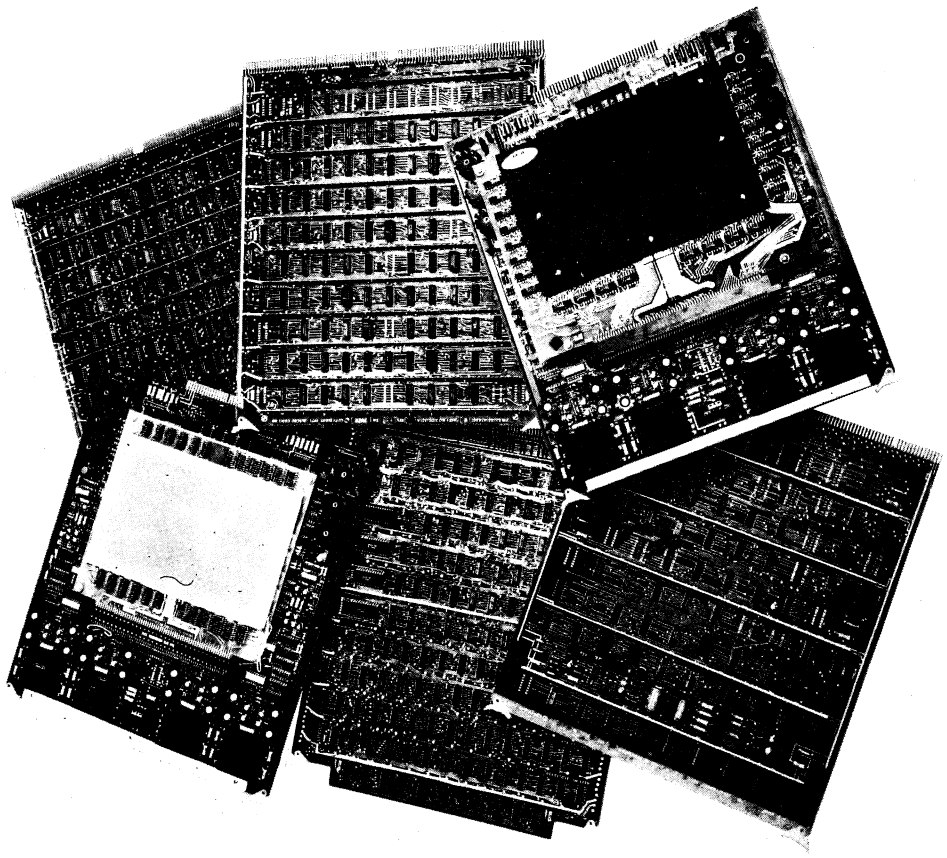
1 NOVA 2/10 with 64K bytes
1 Interdata 85 with 32K bytes
1 Interdata 8/32 with 256K bytes



The following diagram gives the current configuration of the Center's IBM S/370 Model 158.







Peripheral equipment includes:

1 Computek 300 GT graphics terminal
2 teletypes
1 tapedrive
2 (IBM 2741 equivalent) typewriters
4 disks
2 CRT terminals
4 microprocessors

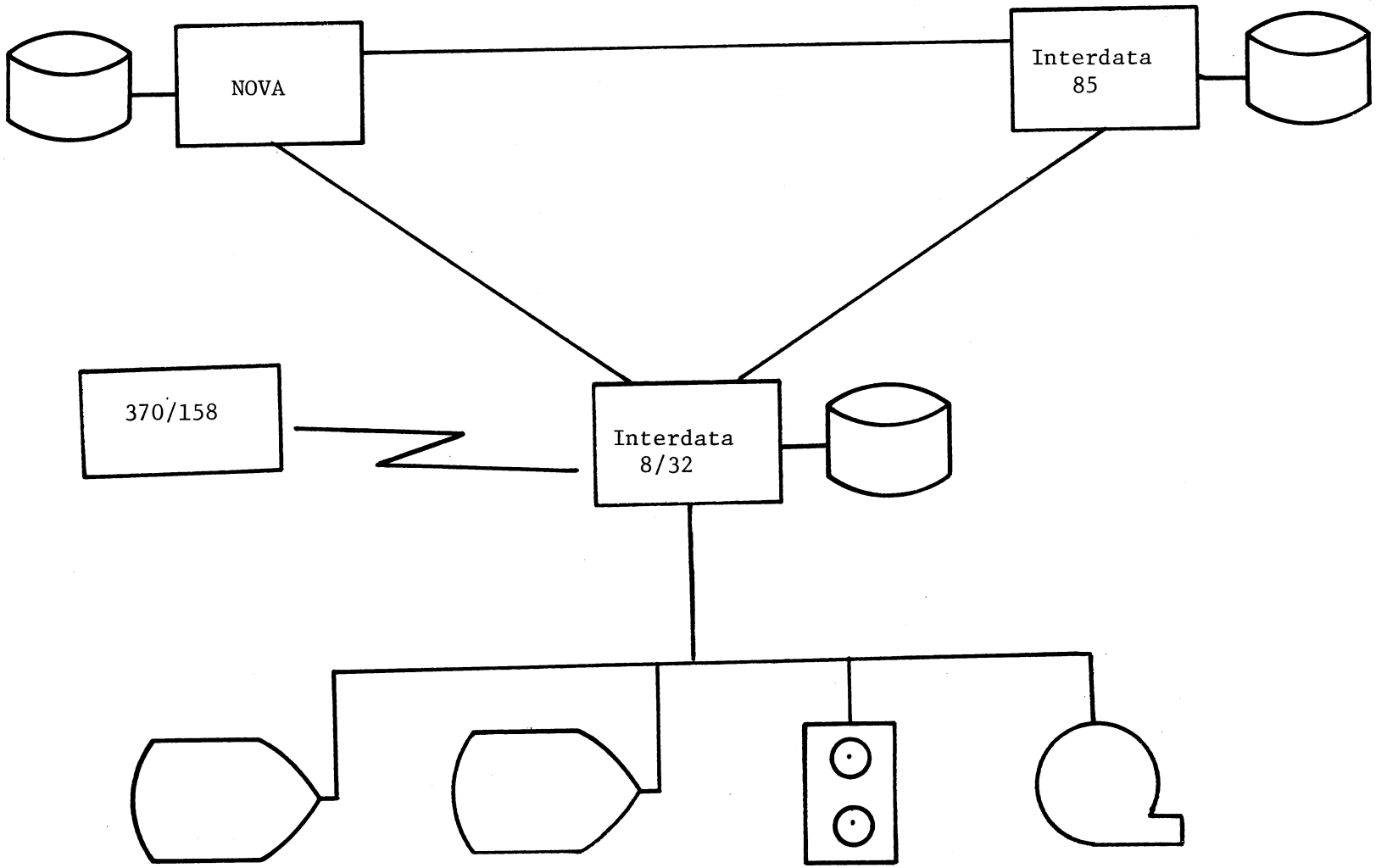
Software

For NOVA: DOS, RDOS, FORTRAN, Assembler, Editor, Macroprocessor and COBOL

For Interdata, BOS, DOS, OS/16(32)-MT, FORTRAN, BASIC, COBOL

An experimental type network is shown at the schematic on page 16.

KSU Mini net



Other University Facilities

The other facilities at K-State include a NOVA computer in the Department of Electrical Engineering, and three PDP minicomputers with the Departments of Physics and Chemistry. The computers support computing requirements of these departments and can support computer science needs on an infrequent basis. The University Data Processing Center operates an IBM 360/30 to support the University administrative data requirements. This facility is available to support computer science needs on an infrequent basis.

Remote Facilities

Through dial up telephone service, the University of Kansas main computer is available. The main computer is a GE/Honeywell 635 with 200 K words of memory. The full set of the common high level languages is available to KSU users as are 20 applications program packages.

SUMMARY OF RESEARCH

Steps Toward Reliable Software: Workshop

US Army **$15,000**

Abstract

Two workshops were sponsored by the US Army with the objective of identifying potentially beneficial research approaches for improvement of software reliability in the military's software production environment. The participants at the workshop included a small number of researchers from the university/industrial community and a selected group of representatives from the Army, Navy, and Air Force. The report of the workshop focuses on mechanisms for the structured refinement of specifications and the interactive "proof" of programs. The first of two workshops considered the theoretical solutions to type problems, and the second considered practical application of techniques to identified problems. Summary of discussions, conclusions, and recommendations was provided to the US Army Computer System Command, Ft. Belvoir, Va. Grant No. DAHC04-75-G-0075.

Usability and Feasibility of Back-End Minicomputers

US Army **$29,512**

Abstract

This project was a study and evaluation of back-end data base management systems. The objective was to determine the feasibility and utility of such a system in the Army's Base Operating Information System (BASOPS) environment. Work toward the objective was accomplished in 4 steps. First: Functional and statistical descriptions of sample subprocesses in the BASOPS environment were made. Second: The effect of converting these sample subprocesses to a data base management system was determined. Third: Specifications were written for a suitable data base management system and processor to host the sample subprocesses. Finally, an analysis was made of the efficiency of operating in the back-end data base management system. Conclusion and recommendations were provided to the US Army Computer System Command, Ft. Belvoir, Va. Grant No. DAHC04-75-G-0137.

Application of Macroprocessors for Software Systems

US Army **$37,850**

Abstract

This work consisted of a study of the US Army's EPS II Macroprocessor (derived from FJ Brown's ML/1) and an evaluation of the suitability for use in implementing various software support tools. Applications considered were macroprocessor portability, PL/1 to TACPOL translation, extensions of METACOBOL, support for "host/target" programming (minicomputer software development on a large timesharing system); preprocessors for language extensions for structured programming, modular programming, standards enforcement, source optimization and debugging techniques. The results of this study were provided to the US Army Computer Systems Command, Ft. Belvoir, Va. Grant No. DAHC04-75-G.

Functionally Distributed Systems for Software Development and Production
US Army **$190,000**

Abstract

The purpose of this 20-month effort is to examine, develop and test where feasible, ideas and concepts surrounding functionally distributed networked computing systems. Development will consider use of back-end minicomputer concepts and bear on portability of programs. Advantages in the use of host/back-end systems for supporting data bases will be considered. Known technical difficulties inherent in this investigation are: multiple systems architecture within a network, accessibility of data bases within networks, mixture of hardware within networks, and communications (message control) within networks. Using state-of-the-art techniques, a prototype solution of these technical problems will be developed and delivered. This effort is on-going with completion scheduled for October 1977.

Minicomputer Diagnostic Routines
Unified Industries Inc. **$25,612**

Abstract

The objective of this study was to design computer routines that would effectively and efficiently test the operation of a NOVA 840 computer. Specific tests were designed to test the CPU's efficiency and ability to decode and execute a broad spectrum of program instructions. Routines were developed to test memory and memory addressing under dynamic load. Routines were written to test arithmetic/logic unit, real time clock control, floating point arithmetic and general logic and arithmetic functions. After validation of support test modules, a generalized diagnostic test was developed to perform a fast automatic check of the NOVA 840 main frame computer, providing diagnostic messages of test results. The resulting general diagnostic program was delivered to the grantor at the conclusion of the project, March, 1975.

Research Into and Development of a Low-Cost Hardware Monitor
US Army **$29,690**

Abstract

The objective of this research was to design a hardware monitor, its controlling software and the user instructions needed to analyze the data collected by the monitor. The research took into account the various monitors that are currently available from commercial sources. The shortcomings of the existing monitors were analyzed so that a new design would alleviate those shortcomings. In the design, a need for a user-oriented monitor was recognized. The design concept centered on the use of a minicomputer to control data collection and data display. The report provides a complete specification for the monitor including the specification for a computer language for users of the monitor. The recommendations were provided to the U.S. Army Computer Systems Command, Ft. Belvoir, Va. Grant No. DAHC04-74-G-0103, July 1975.

Numerical Methods for Partial Differential Equations
Submitted to NSF and ERDA **Proposed Amount $69,619**

Abstract

The numerical method of lines has been found to be very effective in solving difficult engineering problems and quite amenable to the development of generalized software. The purpose of this research is to further refine the numerical techniques utilized in the one-dimensional software and to study the extension of the one-dimensional concepts to higher dimensions. The results of this research should lead to improved numerical methods for partial differential equations and the development of generalized software for wide classes of nonlinear problems in higher dimensions.

Picture Pattern Processor
Unsponsored

Abstract

A picture processing language called ESP^3 (Extended SNOBOL Picture Pattern Processor) has been developed. This language allows construction of two-dimensional line drawings through the evaluation of picture expressions and the description of classes of line drawings with picture patterns. ESP^3 includes a pattern recognition system which performs an ordered search of a subject picture to find occurrences of subpictures which match a given picture pattern. An important aspect of the search procedure is the use of guidance information from the given picture pattern to limit the area of search in the subject picture. Research is currently continuing in exact matching techniques whereby distorted pictures due to noise/interference could also be matched to ESP^3 picture patterns.

Computer Science Graphics Package
Unsponsored

Abstract

As an ongoing project, the department supports and is developing a largely portable package of interactive graphics software. It consists of a core of modules written in a restricted FORTRAN to be highly machine independent together with a few machine dependent I/O and character manipulation routines and terminal dependent display file translators. The core uses basic primitives for vectoring (drawing straight lines), generating character strings, and detecting points and sequences of points. For display it constructs an intermediate (machine independent) display file consisting of operands, coordinates, strings, and processor calls. It includes transformations for translation, rotation, sealing, clipping, concatenation, scan line conversion, and simple hidden line removal. Terminals supported included Computek vector display, Calcomp plotter, and line printing devices.

Portable, Modular, Interactive Interpreter
Unsponsored

Abstract

Another continuing project is the design, implementation, and verification of an interactive interpreter. Overall objective of the project is to develop a prototype for the study of translators, portability, software engineering, verification and proof of programs, and translator/interpreter performance. Objectives of the interpreted languages are:

—easy to use, with many debugging aids

—dynamic type checking and allocation, and large set of high level operators as in APL

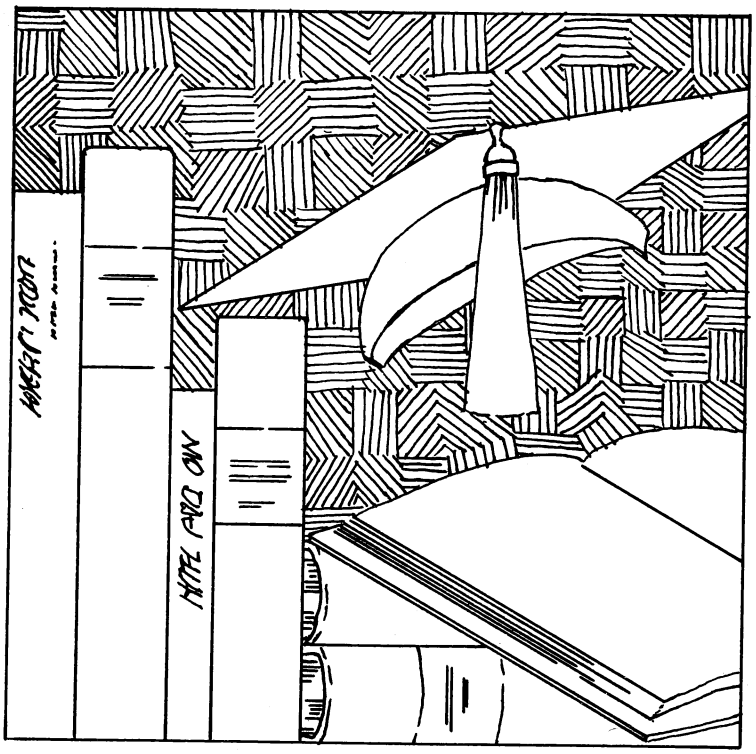
—control structures consistent with modern principles of software engineering (no gotos, modules without side effects, etc.)

Objective of the implementation:

—modular, portable, extendable, based in FORTRAN IV

The interpreter organization includes a finite state scanner, an LL(2) parser for control structures, an operator precedence parser for expressions, a pure stack execution model with a "tagged architecture" heap memory and operators, and simple versions of the editor, a command line processor, a file system interface, and a memory management system. Currently, the core of the interpreter has been built as a single user system, but with essentially no high-level operators.

Our Faculty



PERSONNEL

Dr. Paul S. Fisher Head
Dr. William J. Hankley
Dr. Virgil E. Wallentine
Dr. Richard Sincovec
Dr. Myron A. Calhoun
Dr. Fred J. Maryanski
Dr. Linda G. Shapiro
Ms. Elizabeth Unger
Mr. Edwin W. Basham

RESUME JULY 1975

NAME: Paul S. Fisher

ADDRESS: 3016 Conrow Drive
Manhattan, Kansas 66502

POSITION: Head/Associate Professor
Department of Computer Science
Kansas State University
Manhattan, Kansas 66506

TELEPHONE: Office (913) 532-6350 Home (913) 539-1202

EDUCATION:

1963 BA	Math	University of Utah
1964 MA	Math	University of Utah
1967 PhD	Computer Science	Arizona State University

PROFESSIONAL EXPERIENCE:

1973 - present	Kansas State University	Head
1972 - present	Kansas State University	Assoc. Prof.
1972	Kansas State University	Acting Head
1967-1972	Kansas State University	Asst. Prof.
1969 - summer	Boeing Co., Michoud Facility, New Orleans, LA	Research
1965 - 1967	Self-employed Custom Programming, Phoenix, AZ	
Present	Computer Systems Command, US Army	
Present	Brooks Research, Kansas City, MO	
1969 - present	Synetics, Inc., Kansas City, MO Systems Design and Implementation	
1970	Menninger Foundation, Topeka, KS Data Reduction System - Hardware Procurement	
1969 - 1970	Consulting with several small regional colleges with developing computer science programs.	

APPOINTMENTS:

Reviewer for Computer Reviews ACM
Reviewer for CACM-Programming Systems Section
Reviewer for NSF Grants
Panelist: IEEE 74 Computer Conference - Mini Computer Developments
Session Chairman:
Computer Science Conference
Ohio State, Columbus, Ohio
Participant: NSF-Regional Confernece on Systems
University of Colorado, Boulder, Colorado

Structured Programming
University of New Mexico, Albuquerque, NM

High Level Languages
Indiana University, Bloomington, Indiana

Session Chairman:
Programming Language Implementation on small computers. Sigplan Conference Pedagogic Languages with small Computers, University of Kansas, 1972.

Director
NSF Regional Conference 'Translators and Translator Writing Systems', 1968

Lecturer:
One-week course in Programming Languages for High School, Jr. College Teachers Central State University, Oklahoma

NSF Regional Conference Awarded 9/1/70
Large System Schedular and Performance Monitor System Awarded 1/1/73 Department of Army
Language Assertion and Hint Processing - in preparation

TEACHING EXPERIENCE:

Level	Course
Advanced Graduate	Cellular Computation
"	Compiler Implementation
"	Programming Languages
"	Artificial Intelligence Techniques
Graduate	Systems Programming
"	Business Systems Analysis
"	Automata Theory
"	List and String Processing
"	Data Structures
"	Logic Design
"	Formal Semantics
Undergraduate	Assembly Language
"	Programming Languages (both specific & general)
"	Non-numeric Programming

HONORARY PROFESSIONAL SOCIETIES:
Association of Computing Machinery

RESEARCH FIELDS:
Artificial Intelligence (dormant)
Language Implementation (active)
Aids for System Development (active)

Primary Teaching Interests:

Artificial Intelligence, Languages and Language Implementation, Systems (both Data Processing techniques as well as the usual operating systems.)

PERSONAL DATA:	Date of birth:	March 7, 1942
	Marital Status:	Married
	Family:	3 sons, 2 daughters
	Hobbies:	Antique Cars
	Citizenship:	USA

PUBLICATIONS:

Fisher, Paul S., "A Mini Operating System," ACM-SIGPLAN Symposium, Pedagogic Languages with Small Computer, January 6-7, 1972.

McDonough, V., Paul S. Fisher, R. Weinberg, "Use of Computer Simulation for Designing a Dual-Processing, Time-Sharing, Mini-Computer System", ACM-SIGPLAN Symposium, Pedagogic Languages with Small Computers, Manuary 6-7, 1972.

Ahmed, N., Paul S. Fisher, "Study of Algorithmic Properties of Chebyshev Coefficients," International Journal of Computer Mathematics, Vol. 2, 1970, pp. 307-317.

Ahmed, N., Paul S. Fisher, R. R. Rao, "On a Criteria for Data Compression, and Binary Fourier Representation," presented Midwest Symposium on Circuit Theory, May 7-8, 1970.

Fisher, Paul S., E. E. Kohlbecker, "A Generalized Fibonacci Sequence," Fibonacci Quarterly, Vol, 10, 1972, pp. 337-344.

Skidmore, E. L., Paul S. Fisher N. P. Woodruff, "Wind Erosion Equation: Computer Solution and Application," Soil Science Society of America Proceedings, Vol. 34, No. 5, November-December 1975.

Fisher, Paul S., Hankley, William J., Wallentine, Virgil E., "Separation of Introductory Programming and Language Instruction," 4th ACM-SIGCSE Annual Conference, February 1973.

Cassing, D., Fisher, P., Janes, R., "A Software Virtual Memory System for a Mini-Computer", Second Annual Computer Conference, Austin, Texas.

Fisher, P., "Virtual Memory: A New Horizon For Mini Computers" 9th IEEE Computer Society International Conference, Washington, D.C., Sept. 1974.

Hankley, W., Fisher, P., "A Vertical Assertion Facility", Third Annual Computer Conference, Austin, Texas, Nov. 1974.

RESUME

July 1975

NAME: William J. Hankley

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Manhattan, KS 66502

POSITION: Associate Professor
Department of Computer Science
Kansas State University
Manhattan, Kansas 66506

TELEPHONE: Office (913)532-6350 Home (913)539-2731

EDUCATION:

1962	BS	Electrical Engineering Northwestern University
1964	MS	EE (Information Science) Northwestern University
1967	PHD	EE (Computer Science) Ohio State University

PROFESSIONAL EXPERIENCE:

Employment

1972 - Present	Current Position
1967 - 1972	Asst. Prof of Computer Science & EE University of Utah
1965 - 1967	Research Assistant Ohio State University
1964 - 1967	Instructor, Ohio State University
1962 - 1964	Teaching Assistant Northwestern University
1964	Research Engineer North American Rockwell
1963	Research Engr., Boeing Co.
1962	Research Engineer, IBM Lexington, Ky
1961	Research Assistant, Square D, Co.

HONORARY PROFESSIONAL SOCIETIES:

Associate for Computing Machinery (SIGPLAN, SIGCSE, SIGGRAPH)
IEEE (Computer Society)
Pi Mu Epsilon
Sigma Xi

RESEARCH FIELDS:

Software Engineering (Portability and correctness, asertion refinement)
Programming Languages (interpreters, easy-to-use very high level language)
Interactive Graphics

PERSONAL:

Date of Birth: May 31, 1942
Marital Status: Married Wally Lense
Family: 3 children

Citizenship: United States

PUBLICATIONS:

W.J. Hankley, "Time-Optimal Control of Discrete Systems Subject to Input Saturation," Technical Report No. 10, Computer Sciences Laboratory, Northwestern University, 1964.

W.J. Hankely and J.T. Tou, "Note on Control of Multiple Input Discrete Systems," IEEE Transactions on Automatic Control (correspondence), Vol. AC-12, No. 4, August, 1967, pp. 469-470.

W.J. Hankley and J.T. Tou, "Automatic Fingerprint Interpretation and Classification via Contextual Analysis and Topological Coding," in Pictorial Pattern Recognition, Thompson Book Company, Washington, D.D., 1968, pp. 411-456.

W.J. Hankley, "Fingerprint Classification for Automated Processing," Proceedings, Carnahan Conference on Electronic Crime Countermeasures, University of Kentucky, 1968, pp. 70-82. Also presented 1968 Western Electronics Convention, WESCON Booklet 18, Los Angeles, California, August, 1968.

H.M. Merrill and W.J. Hankley, "N10 Failure Diagnosis Using Pattern Recognition," Technical Report SRL-68-6, Systems Research Laboratory, University of Utah, August, 1968.

W.J. Hankley and H.M. Merrill, "A Pattern Recognition Technique for System Error Analysis," IEEE Transactions on Reliability, special issue on Computer Aided Design and Analysis for Reliability and Maintainability, Vol. R20, #3, August, 1971, pp. 148-153.

P.C. Abegglen, W.R. Faris, and W.J. Hankley, "Design of a Real-Time Central Data Acquisition and Analysis System," Proceedings of the IEEE, Vol. 58, No. 1, January, 1970, pp. 38-48, special issue on Computers in Industrial Process Control. Reprinted in J. Schoeffler and R. Temple (Eds), Minicomputers: Hardware, Software, and Applications, IEEE Press, New York, 1972.

F.E. Templeton and W.J. Hankley, "Optimal Control of a Process with Discrete and Continuous Decision Variables," Technical Report, Computer Science, University of Utah, September, 1970. A preliminary version of this work appears as "Dynamic Optimal Control of a Process with Discrete

and Continuous Decision Variables," in Techniques for Decision Making in the Mineral Industry (Proceedings 1970 International Symposium), Canadian Institute of Mining and Metallurgy, Montreal 110, Quebec, 1971.

T.A. Carey and W.J. Hankley, "Empirical Modeling of Occurrence of Severe Weather Events," Technical Report, Computer Science, University of Utah, January, 1972. Also, in Proceedings Conference on Environmental Engineering, Society of Engineering Science, Washington, D.C., 1971, pp. 83-108.

W.J. Hankley and N.J. Miller, "Characterization of Pulse Waveforms for Classification," (Abstract) Conference Record, IEEE Symposium on Feature Extraction and Selection, IEEE, New York, N.Y., 1970.

W.J. Hankley, "Source-Environment Models for SO_2 Concentration," Internal Document, Scientific and Engineering Computer Center, Kennecot Copper Corporation, 1971.

P. Fisher, W. Hankley, V. Wallentine, "Separation of Introductory Programming and Language Instruction," SIGCSE Bulletin, Vol. 5, #1, Feb., 1973.

W. Hankley, V. Wallentine, "Programming Language Design for a Spectrum of Users," 7th Annual Conference on the Interface of Computer Science and Statistics, Iowa State University, October, 1973.

W. Hankley, P. Fisher, "Top Down Refinement of Assertions," Third Texas Conference on Computing Systems, Nov., 1974.

W. Hankley, "Anatomy of Programming Languages," CS 405 Class Notes, In Preparation.

P. Fisher, W. Hankley, J. McCull, "Steps Towards Reliable Software," (Workshop Proceedings), US Army Computer Systems Command, March 1975 (also KSU Technical Report (S-75-01).

J. Carrow, P. Fisher, W. Hankley, I. McCall, "Structured Programming Workbook", (Workshop Proceedings), US Army Computer Systems Command, June 1975 (also KSU Technical Report 75-01).

A. Gonen, I. Sagie, W. Hankley, "EPS II Macroprocessor Applications to Software Systems", US Army Computer Systems Command, August 1975 (also KSU Technical Report (CS-75-04).

NAME: Virgil E. Wallentine

ADDRESS: 3101 Arbor Drive
Manhattan, Ks. 66502

POSITION: Assistant Professor
Computer Science Department
Kansas State University
Manhattan, Ks. 66506

TELEPHONE: office (913) 532-6350 home (913) 539-6284

EDUCATION:

1965	BS	Mathematics	Iowa State University
1970	MS	Computer Science	Iowa State University
1972	PhD	Computer Science	Iowa State University

PROFESSIONAL EXPERIENCE:

Employment

1972 - Present	Current Position
1971 - 1972	Instructor & Systems Analyst, Iowa State Univ.
1967 - 1971	Systems Analyst, Ames Laboratory, WS Atomic Energy Commission, Ames, Iowa
1966 - 1967	Research Worker, Iowa Methodist Hospital Des Moines, Iowa (1/2 time)
1965 - 1966	Research Assistant, Computer Center, Iowa State Univ., (1/2 time)

Conferee

1972	Operating Systems Principles, NSF, 1 week, Boulder, Colorado
1972	Algorithmic Descriptions, NSF, 1 week, Indiana University

Consultant

1973	Reviewer for Papers, Conference on High Level Language Computer Architecture, University of Maryland

Grants

1974	(With P.S. Fisher and M.A. Calhoun), Research in Development of Low-Cost Hardware Monitor ($29,696)

HONORARY PROFESSIONAL SOCIETIES: Association of Computing Machinery (SIGPLAN, SIGOPS, SIGCSE, SIGMICRO, SIGACT).
SIGMA XI (Research Honorary)

RESEARCH
FIELD: Operating Systems
Programming Languages
Computer Networks
Software Engineering

PERSONAL
DATA: Date of Birth - April 16, 1943
Marital Status - Married
Family - two children
Citizenship - U.S.
Security Clearance -

PUBLICATIONS:

Papers:

(with J.H. Campbell and C.T. Wright). A pedagogical operating system. ACM SIGPLAN Symposium on Pedagogic Languages with Small Computers, January, 1972.

(with P.S. Fisher and W.J. Hankley). Separation of introductory programming and language instruction. Proceedings of ACM SIGCSE Annual Conference, February, 1973.

(with F.R. Keller). Operating Systems in the Process Control Environment. Proceedings of Second Texas Conference on Computing Systems, Austin, Texas. November, 1973.

(with W.J. Hankley). Design of a Spectrum of User - Oriented Languages. Proceedings of Seventh Annual Conference on the Interface of Computer Science and Statistics, Ames, Iowa, October, 1973.

Technical Reports:

A pre-scan processor for Task. (Iowa State University), U.S. Atomic Energy Commission Report IS-2361, UC-32, September, 1970.

(with C.T. Wright and F.R. Keller). An abstract machine to control the execution of semi-independent concurrent computations. (Iowa State University), U.S. Atomic Energy Commission Report IS-2920, August, 1972.

A critical survey of time-sharing system analysis techniques. (internal report). Ames Laboratory, U.S. Atomic Energy Commission, May, 1969.

(with N. Waddington). Directory control in a segmented address space. (internal report). Ames Laboratory, U.S. Atomic Energy Commission, May, 1971.

(with T.H. Dana). Process address space control in a virtual memory. (internal report). Ames Laboratory, U.S. Atomic Energy Commission, May, 1971.

(with D. VanArkel). Hierarchy control in a segmented address space. (internal report). Ames Laboratory, U.S. Atomic Energy Commission, May, 1971.

Relevant concepts in the design of multiaccess computer systems. (internal report). Ames Laboratory, U.S. Atomic Energy Commission, January, 1971.

NODE - A package of Fortran subroutines to solve ordinary differential equations. I.S.U. Computation Center Program Library, Iowa State University, Ames, Iowa, 1965.

Text Material:

(with A.E. Oldehoeft). Principles of Operating Systems. Department of Computer Science, Iowa State University, 1972. (In preparation as a textbook).

RESUME DECEMBER 1975

NAME: Richard F. Sincovec

ADDRESS: 1700 Cedar Crest Drive
Manhattan, Kansas 66502

POSITION: Associate Professor
Computer Science Department
Kansas State University
Manhattan, Kansas 66506

TELEPHONE: Office (913) 532-6350 Home (913) 539-5735

EDUCATION:

1964 B.S. Applied Mathematics, University of Colorado
1967 M.S. Applied Mathematics, Iowa State University
1968 Ph.D. Applied Mathematics, Iowa State University
Professional Training:
Reservoir Engineering School, Esso Production Research Company, 6 weeks, 1969
Elements of Reservoir Simulation, University of Texas, 1 week, 1969

PROFESSIONAL EXPERIENCE:

EMPLOYMENT

1974 - present	Current Position
1970 - 1974	Asst. Professor Computer Science and Mathematics - KSU
1971 - 1972	Mathematician Lawrence Livermore Laboratories (Summers)
1968 - 1970	Senior Research Mathematician, Esso Production Research Co.
1966 - 1968	Graduate Research Asst., Ames Laboratory Ames, Iowa
1964 - 1968	Graduate Teaching Asst., Iowa State University
1963 - 1965	Engineer E.I. duPont de Nemours Co. (summer)

CONSULTANT

Lawrence Livermore Laboratory, Livermore, CA.

GRANTS

KSU Bureau of General Research Grant - Fiscal year 1970-71, $775.

KSU Bureau of General Research Grant - Fiscal year 1971-72, $1000.

American Chemical Society - Petroleum Research Fund Grant Sept. 1, 1971-Aug. 31, 1974, $7500.

KSU Bureau of General Research Grant - Fiscal year 1974-75, $750.
KSU Bureau of General Research Grant - Fiscal year 1975-76, $900.

REVIEWER

Journal of Computational Physics
Journal of the Society of Petroleum Engineers
S.I.A.M. Journal on Numerical Analysis
American Chemical Society, Petroleum Research Fund, Research Proposals
National Science Foundation

Numerous seminars on numerical techniques for solving differential equations and numerical linear algebra.

AWARDS

Biographical listing in American Men and Women of Science

HONORARY PROFESSIONAL SOCIETIES:

Society for Industrial and Applied Mathematics (S.I.A.M.)
Association for Computing Machinery (A.C.M.)
Special Interest Group on Numerical Mathematics (SIGNUM)
Society of Petroleum Engineers of A.I.M.E.
Sigma Tau
Phi Theta Kappa

RESEARCH INTERESTS:

Numerical Analysis
Ordinary Differential Equations, Partial Differential Equations, Linear Algebra, Spline Functions, Algorithms, and Software.
Mathematical Optimization Techniques
Petroleum Reservoir Simulation
Atmospheric Simulation

PERSONAL DATA:

Date and Place of Birth: July 14, 1942, Pueblo, Colorado
Marital Status: Married: 2 childred
Clearance: "Q" clearance (A.E.C. File No. CA-38488) granted June, 1971.

PUBLICATIONS.

"Generalized Collocation Methods for Time Dependent Nonlinear Boundary Value Problems," SPE 5726, submitted to Society of Petroleum Engineers Journal, to be presented at Symposium on Numerical Simulation of Reservoir Performance, Los Angeles, Feb. 19-20, 1976.

"A Stable Difference Scheme for the Solution of Hyperbolic Equations Using the Method of Lines," (with J.C. Heydweiller), to be submitted to Journals of Computational Physics.

"On the Relative Efficiency of Higher Order Collocation Methods for Solving Two-Point Boundary Value Problems," submitted to SIAM Journal on Numerical Analysis.

"Generalized Software for Partial Differential Equations," (with N.K. Madsen) UCRL-77062, Lawrence Livermore Laboratory, Livermore, CA, July, 1975. Presented at AIChE 80th National Meeting, Boston, MA, Sept. 7-10, 1975.

"PDEPACK: A New Tool for Simulation," (with N.K. Madsen). Proceedings of the 1975 Summer Computer Simulation Conference, San Francisco, California, July, 1975.

"PDEONE, Solutions of Systems of Partial Differential Equations," (with N.K. Madsen) ACM Transactions on Mathematical Software, Vol. 1, 1975, pp. 261-263.

"Software for Nonlinear Partial Differential Equations," (with N.K. Madsen) ACM Transactions on Mathematical Software, Vol. 1, 1975, pp. 232-260.

"Numerical Reservoir Simulation Using an Ordinary Differential Equations," Society of Petroleum Engineers Journal, June, 1975, pp. 255-264.

"The Numerical Solution of Nonlinear Partial Differential Equations," (with N.K. Madsen), Computational Methods in Nonlinear Mechanics, Texas Institute for Computational Mechanics, 1974, pp. 371-380.

"Algorithm: Block Tridiagonal Linear Systems Solver," submitted to ACM Transactions on Mathematical Software.

"The Numerical Method of Lines for the Solution of Nonlinear Partial Differential Equations," (with N.K. Madsen) UCRL-75142, Lawrence Livermore Laboratory, University of California, September, 1973.

"Spline Function Collocation Methods for Linear Two-Point Boundary Value Problems" (with E.T.Y. Lee), Bulletin of the Institute of Mathematics Academia Sinica, June, 1973.

"Comparison of Hindmarsh's Program GEARA with Shampine's Program DE/STEP," NSM Technical Memorandum No. 73-4, Lawrence Livermore Laboratory, May, 1973.

"Strongly Implicit Procedure (SIP) in Two-Dimensions and m Components (Phases)," NSM Technical Memorandum No. 73-3, Lawrence Livermore Laboratory, University of California, January, 1973.

"On the Solution of the Equations Arising from Collocation with Cubic B-Splines, Mathematics of Computation, October, 1972.

"Some Projection Methods in Atmospheric Simulation," UCID-16186, Lawrence Livermore Laboratory, University of California, Livermore, California, August 1972.

"Eispack User's Guide," (with R.P. Dickinson, Jr., F.N. Fritsch, and R.F. Hausman, Jr.), UCID-30077, Lawrence Livermore Laboratory, University of California, August, 1972.

"Cubic Spline Collocation Method for Nonlinear Second-Order Boundary Value Problems," UCRL-73370, Lawrence Livermore Laboratory, August, 1971.

"Use of Cliches to Simplify IO Coding," Research Memorandum No. 71-5 (with R.F. Hausman, Jr.), Lawrence Livermore Laboratory, July, 1971.

Numerical Linear Algebra, (book), Lawrence Livermore Laboratory, 1971.

"The Application of Galerkin Methods to Reservoir Simulation - Final Report," Research Report, Esso Production Research Company, 1970.

"The Treatment of Wells in Galerkin Methods," Research Report, Esso Production Research Company, 1970.

"Sensitivity Analysis of Methods for Evaluating Matrix Elements Arising in Galerkin Techniques," Research Report, Esso Production Research Company, 1970.

"Numerical Methods of Evaluating Matrix Elements Arising in Galerkin Techniques" (with R.S. Randolph), Research Report, Esso Production Research Company, 1970.

"Development of a 1D-2Ø Incompressible Reservoir Simulation by a Total Galerkin-Spline Technique," Research Report, Esso Production Research Company, 1970.

"Precision Calculation of Eigenvectors by Norm Reduction," (with R.J. Lambert), Ames Laboratory Research Report, 1970.

"Spline Function Collocation Methods," (with E.T.Y. Lee), Research Report, Esso Production Research Company, 1969.

"Derivation of Matrix Equations for Reservoir Simulation by Galerkin's Method," Research Report, Esso Production Research Company, 1969.

"1D-2Ø Incompressible Reservoir Simulation," Research Report, Esso Production Research Company, 1969.

"Cubic Spline Functions," Research Report, Esso Production Research Company, 1969.

"Algorithms for Determining Eigenvectors by Norm Reduction," Ph.D. Thesis, Iowa State University, 1968.

RESUME

November, 1975

NAME: Myron A. Calhoun

ADDRESS: 2001 Dunbar
Manhattan, KS 66502

POSITION: Assistant Professor
Department of Computer Science
Kansas State University
Manhattan, KS 66506

TELEPHONE: office (913) 532-6350 home (913) 537-9661

EDUCATION:

1967	PhD	Electrical Engineering	Arizona State University, Tempe
1964	MS	Electrical Engineering	Colorado State University, Ft. Collins
1963	BS	Electrical Engineering	University of Kansas, Lawrence
1961		Troy State Teachers College, Troy, Alabama	
1961	AA	Graceland College, Lamoni, Iowa	
1959		Pensacola Junior College, Pensacola, Florida	

PROFESSIONAL EXPERIENCE:

Employment

1974 - Present	Current Position
1971 - 1974	Asst. Professor of Electrical Engr. and Computer Science, KSU
1967 - 1971	M.T.S., Fairchild R & D Laboratory, Palo Alto, CA
1969 - 1971	Instructor, Santa Clara County Adult Ed. System, Santa Clara, CA
1966 Summer	Engineer, E.G. & G. Inc., Las Vegas, Nevada
1963 Summer	M.T.S. Bell Labs, Holmdel, NJ

Consultant

1973 Brooks Research Mfg., Kansas City, Mo.

Conferee

1968 IEEE Region Six, Portland Oregon
1971, 1972 Spring Joint Computer Conference
1973 High-Level Language Computer Architecture (Symposium)
1973 Third Annual Microprogramming Workshop, Phoenix, AZ
1974 Third Texas Conference on Computer Systems, Austin, Texas
1974 MAE-CON, Kansas City
1975 Missouri Symposium on Advanced Automation
1975 Sixth Annual Pittsburg Modeling and Simulation Conference

Reviewer

1969, 70, 71 Fall Joint Computer Conference
1973 Symposium, High-Level Language Computer Architectures
1974 Science Research Asso., Palo Alto, CA

Grants

1971 "Investigation of man-machine communication via programmable tone generators attached to a computer," ($300) Bureau of General Research.
1971 "Interdepartmental investigation of music generation by computer," ($1,700) Bureau of General Research.
1973 "Digital Computer Architecture Laboratory," ($1,340), Bureau of General Research.
1973 "Electronic Control Unit for an Audio Cassette Recorder," ($675) Bureau of General Research.

Awards

1964 NASA Traineeship, Arizona State University
1963 NSF Graduate Fellowship, Colorado State University
1963 Graduate "With Highest Distinction" from University of Kansas
1962 RCA Scholarship, University of Kansas
1961 BOEING Scholarship, University of Kansas
1961 GOLD SEAL for scholarship, Graceland College
1959 National Merit Finalist
1959 Valedictorian, Milton High School, Milton, FL

Appointments

1974 Graduate Faculty Member, Kansas State University

HONORARY PROFESSIONAL SOCIETIES: IEEE, the Computer Group, and the Tech. Committee on Comp. Arch.
Standing Technical Program Committee of COMPCON
Tau Beta Pi

RESEARCH FIELD: Hardware design and implementation of both dedicated-application, non-programmable digital systems and small- and large-scale general-purpose, programmable computers (ranging from a smaller-than-mini binary computer to a highly-sophisticated multi-programming, multi-processing digital computer).

Programming of computer system software, Management Information Systems, and user-oriented application programs on various computers, including a test-and-control language for debugging new computer hardware interfaced to an existing computer.

Other Areas of Interest

Smoothing of Hardware-Firmware-Software-Programming boundaries.
Machine-independent software and/or languages.
Computer-aided design of digital systems.

PERSONAL DATA:

Date of Birth - January 31, 1941
Marital Status - Married
Family - 3 children
Hobbies - Amateur Radio (WØPBV), beekeeping, fishing, farming
Citizenship - USA
Clearances - NASA "Q" 1966

Publications

1. "A System for Digital Design and Simulation," with J. Scott Vance. Sixth Annual Pittsburgh Modeling and Simulation Conference, April 24, 1975.

2. "A Design Automation System and Its Uses" (expanded version of earlier presentation) Missouri Symposium on Advanced Automation, April 15, 1975, Columbia, MO.

3. "The (Semi) Automatic Testing Languages for SYMBØL," Missouri Symposium on Advanced Automation, April 15, 1975, Columbia, MO.

4. "A Design Automation System and Its Uses," Proc. MAE-CON, Kansas City, MO, November, 1974.

5. "Computer Instrumentation of SYMBOL," Proc. Third Texas Conf. on Computing Systems, Austin, TX, November, 1974.

6. "SYMBOL Hardware Debugging Facilities," Proc. SJCC, Atlantic City, NJ, May, 1972.

7. "SYMBOL Large Experimental System Exploring Major Hardware Replacement of Software," with others, Proc. SJCC, Atlantic City, NJ, May, 1971.

8. "Meta-Assembly Made Easy," IEEE Region Six Conf., Portland, OR, May, 1968.

9. Machine-independent Assemblers for Computing Systems, Ph.D. Dissertation, Arizona State University, Tempe, AZ, July, 1967.

10. "Cauer Synthesis by Digital Computer," Proc. GET Conf., Scottsdale, AZ, April, 1965. Also presented at IEEE Region Six Student Paper Contest, Graduate Division (shared first place with the other entry)!

11. "On Using Your Head," The Slide Rule (Engineering student publication), Colorado State University, Ft. Collins, CO, January, 1964.

12. "Construction and Testing of IOD Translation Store Current Servo," Case 39873, Bell Telephone Laboratories, Holmdel, NJ, September, 1963.

13. "A Pseudo-Pulse Emission for the Amateur Bands Below 2.3 GHz," presented at Kansas City Chapter of the IEEE and in the IEEE Student Paper Contest, Undergraduate Division (won first place at both presentations), 1963.

14. "Electricity as It Affects Our Modern Homes and Farms," presented 4 times in the 4-H Club Public Speaking Contest (won First Place in the Florida Statewide competition--there was no nationwide competition, unfortunately!), 1955.

RESUME

January 1976

NAME: Fred Maryanski

ADDRESS: 3064 Tamarak Drive
Manhattan, KS 66502

POSITION: Assistant Professor
Department of Computer Science
Kansas State University
Manhattan, Kansas 66506

TELEPHONE: Office (913) 532-6350 Home (913) 539-2414

EDUCATION:

1968	BS	Mathematics	Providence College
1972	MS	Computer Science	Stevens Institute of Technology
1974	PhD	Computer Science	University of Connecticut

PROFESSIONAL EXPERIENCE:

Employment

1974 - Present	Current Position
1973 - 1974	Instructor, University of Connecticut
1971 - 1973	Graduate Teaching Assistant Computer Science, University of Connecticut
1968 - 1971	Member Information Systems Staff, Western Electric Co.

Consultant

1974 -	Unified Industries, Alexandria, Va.

Grants

Unified Industries, Diagnostic Programs for NOVA Computer 1974 ($18,922)
U.S. Army Computer Systems Command, Feasibility of Back-end Mini-computers, 1975, ($29,512). Grant No. DAHC04-75-G-0137.
Bureau of General Research, KSU, Automata Synthesis of Mathematical Models for MYOSIS Studies in Past Genetics, 1975 ($3,150).

PROFESSIONAL ACTIVITIES:

Association for Computing Machinery (SIGMINI)
IEEE Computer Society
Reviewer for IEEE Transactions on Computers
Reviewer for ACM Forsythe Student Paper Competition

RESEARCH FIELD:

Systems Modelling and Simulation
Data Base Management
Probabilistic Grammars and Automata
Grammatical Inference

PERSONAL DATA:

Date of Birth - July 21, 1946
Marital Status - Married
Family - one child
Citizenship - U.S.

PUBLICATIONS:

F. J. Maryanski, and T. L. Booth, Estimation Automata for Stochastic Sequential Machines, 7th Princeton Conference on Information Science and Systems, pp. 268-272, 1973.

F. J. Maryanski, Inference of Probabilistic Grammars, Technical Report CS-74-9, Dept. of Electrical Engineering Computer Science, University of Connecticut, Storrs, Connecticut, 1974.

F. J. Maryanski, and T. L. Booth, Inference of Probabilistic Context-free Grammars, Proc. 8th Hawaii International Conference on System Sciences, 1975.

F. J. Maryanski, and T. L. Booth, Inference of Finite-State Probabilistic Grammars, IEEE Transactions on Computers, Revised version in preparation.

D. J. Codespoti, and F. J. Maryanski, Distributing Operating System Functions to Microprocessors, 8th AICA Congress on Simulation of Systems, 1976.

NAME: Linda G. Shapiro

ADDRESS: 2206 Timbercreek Dr.
Manhattan, Kansas 66502

POSITION: Assistant Professor
Department of Computer Science
Kansas State University
Manhattan, Kansas 66506

TELEPHONE: Office (913) 532-6350 Home 776-6135

EDUCATION:

1970 BS Mathematics and Computer Science, University of Illinois at Urbana-Champaign
1972 MS Computer Science University of Iowa
1974 PhD Computer Science University of Iowa

PROFESSIONAL EXPERIENCE:

Employment

1974 - Present	Current Position
1970 - 1974	Teaching Research Fellow, University of Iowa
1969 - 1970	Programmer, Statistical Tabulating Corp., Chicago, Illinois (summers)
1968 - 1970	Student Consultant, Digital Computer Laboratory, University of Illinois at Urbana-Champaign

Positions

1973 - 1974	Vice President, Student Chapter ACM, University of Iowa

Conferee

1973	Computer Science Conference, Columbus, Ohio
1973	3IJCAI, Stanford University
1974	Computer Science, Detroit, Michigan; Lecturer - "A Graphics Extension to SNOBOL4 for Recognition and Manipulation of Line Drawings"
1975	Presented paper "ESP^3: A High Level Graphics Language" at Second Annual Conference on Computer Graphics

Courses Taught

Introduction to Computer Science
Data Structures
Programming Languages
Operating Systems
Computer Organization on Programming

RESEARCH FIELD:

Picture Analysis
Programming Languages
Graphics
Pattern Recognition

PERSONAL DATA:

Date of Birth:	June 10, 1949
Marital Status:	Single
Citizenship:	United States

PUBLICATIONS:

"ARTIST: An Experiment in Picture Creation Using Natural Language Input", Department of Computer Science Technical Report No. 73-02, University of Iowa, March 1973.

"Graph Processing Using GROPE/360," Department of Computer Science Technical Report No. 73-13, University of Iowa; Daniel P. Friedman, Indiana University; and Jonathon Slocum, The University of Texas at Austin.

"ESP^3: A Language for the Generation, Recognition, and Manipulation of Line Drawings" (Ph.D. thesis), Department of Computer Science Technical Report NO. 74-04, University of Iowa, August 1974.

"ESP^3: A High-Level Graphics Language," Proceedings of the Second Annual Conference on Computer Graphics, June 1975.

RESUME JULY 1975

NAME: Elizabeth A. Unger

ADDRESS: 3009 Wayne Drive
Manhattan, Kansas 66502

POSITION: Assistant Professor
Department of Computer Science
Kansas State University
Manhattan, Kansas 66506

TELEPHONE: Office (913) 532-6350 Home (913) 539-6549

EDUCATION:

1961	BS	Mechanical Engineering Michigan State University
1963	MS	Mathematics Michigan State University

PROFESSIONAL EXPERIENCE:

EMPLOYMENT

1974 - Present	Current Position
1970 - 1974	Associate Director KSU Computing Center
1967 - 1970	Assistant Director KSU Computing Center
1966 - 1967	Chief Programmer KSU Computing Center
1963 - 1966	Manager, User Services, Computing Laboratory, Michigan State University
1961 - 1962	Graduate Assistant, Computing Laboratory, Michigan State University
1959 - 1961	IBM Applied Science Representative, Lansing, Michigan
1957 - 1959	Laboratory Assistant, Michigan State University

REVIEWER

ACM	Information Retrieval and Computer Center Management
1973 - 1974	Faculty Senate
1973 - 1974	Academic Affairs Committee
1969 - 1970	University Digital Computer Committee
1969	Alumni Board of Directors, College of Engineering, Michigan State University
1967 - 1973	Committee for Higher Education in Computing in Kansas

AWARDS

1970	Distinguished Alumni Award, Michigan State University

HONORARY PROFESSIONAL SOCIETIES:

American Society for Mechanical Engineers
Association for Computing Machinery
Tau Beta Pi
Phi Kappa Phi
Pi Tau Sigma
Pi Mu Epilon
Mortor Board
Sigma Xi

RESEARCH FIELDS:

Programming Languages
Information Retrieval Systems for Behavioral Science
Computer Libraries

PERSONAL DATA:

Date of Birth:	May 23, 1939
Marital Status:	Married (Nea Buschlen) 1 son, 2 daughters
Citizenship:	USA

PUBLICATIONS:

CIPRA, J.E., UNGER, E.A. and BIDWELL, O.W., "A Computer Program to 'Key-out' World Soils," Soil Science, September 1969.

DANSKIN, DAVID G., UNGER, E.A. and KENNEDY, CARROLL E., Adapting the Computer for Narrative Material: A Progress Report, Journal of Counseling Psychology, 17, pp 63-66, 1970.

RESUME JULY 1975

NAME: Edwin W. Basham

ADDRESS: 1920 Bluestem Trail
Manhattan, Kansas 66502

POSITION: FACULTY
Department of Computer Science
Kansas State University
Manhattan, Kansas 66506

TELEPHONE: Office (913) 532-6350 Home (913) 532-1485

EDUCATION:

1946	BS	Military Science-USMA
1958	MS	Electrical Engineering-Georgia Tech
1971		Computer Science-American University
1974		Computer Science KSU

PROFESSIONAL EXPERIENCE:

EMPLOYMENT

1975 - present	KSU
1973 - 1975	Professor of Military Science - KSU
1969 - 1973	Director Computer Center U.S. Army, Falls Church, VA
1968 - 1969	Director, Data Service Center, U.S. Army Vietnam
1964 - 1969	Staff Officer Management Information Systems, U.S. Army Pentagon
1946 - 1964	Artillery Officer Staff and Command Positions, U.S. Army

CONFEREE

1973	Data Systems, DOD, Washington D.C.
1972	Time Share System RCA, Washington D.C.
1971	ADP Management AMA, New York, N.Y.
1970	Army Data System USACSC, Washington D.C.
1969	Systems Analysis Techniques CSC Washington D.C.

TEACHING EXPERIENCE

1951 - 1953	Instructor, repair and maintenance of electronic weather equipment, Ft. Sill, OK
1958 - 1961	Instructor, Ballistic Meteorology Ft. Sill, OK
1959 - 1959	Instructor, Mathematics, Carmeron College, Lawton, OK
1973 - 1975	Professor of Military Science, Kansas State University, Manhattan, KS

MILITARY SERVICE

1946 - 1975 U.S. Army
Specialty: Artillery Ballistic Meteorology, Data Processing
Highest Rank: Colonel
Type Discharge: Retired

HONORARY PROFESSIONAL SOCIETIES:

DPMA (Charter Member) Falls Church, VA 1973
Rotary International, Manhattan, KS

RESEARCH FIELD:

ADPS Management
Software Engineering
System Evaluation

PERSONAL DATA:

Date of Birth: August 9, 1921
Marital Status: Married - Mary L. Schoriee
Family: 3 sons, 1 daughter
Hobbies: Ham, former K4EEN, photography, gardening, geneology, Military History

PUBLICATIONS:

Artillery Meteorology	Arty Trends	USAAS	1961
The 175 mm Gun	Arty Trends	USAAS	1964