Advanced Research

IV. ADVANCED RESEARCH

Both Kansas State University and the University of Kansas have recruited strong faculties, and the student can avail himself of one or both as he feels the need or inclination. Although each faculty covers the basic areas of computer science, there are distinctions between the programs at the Ph.D. research level. Currently, the identification of specialties is as follows:

Identified with the University of Kansas

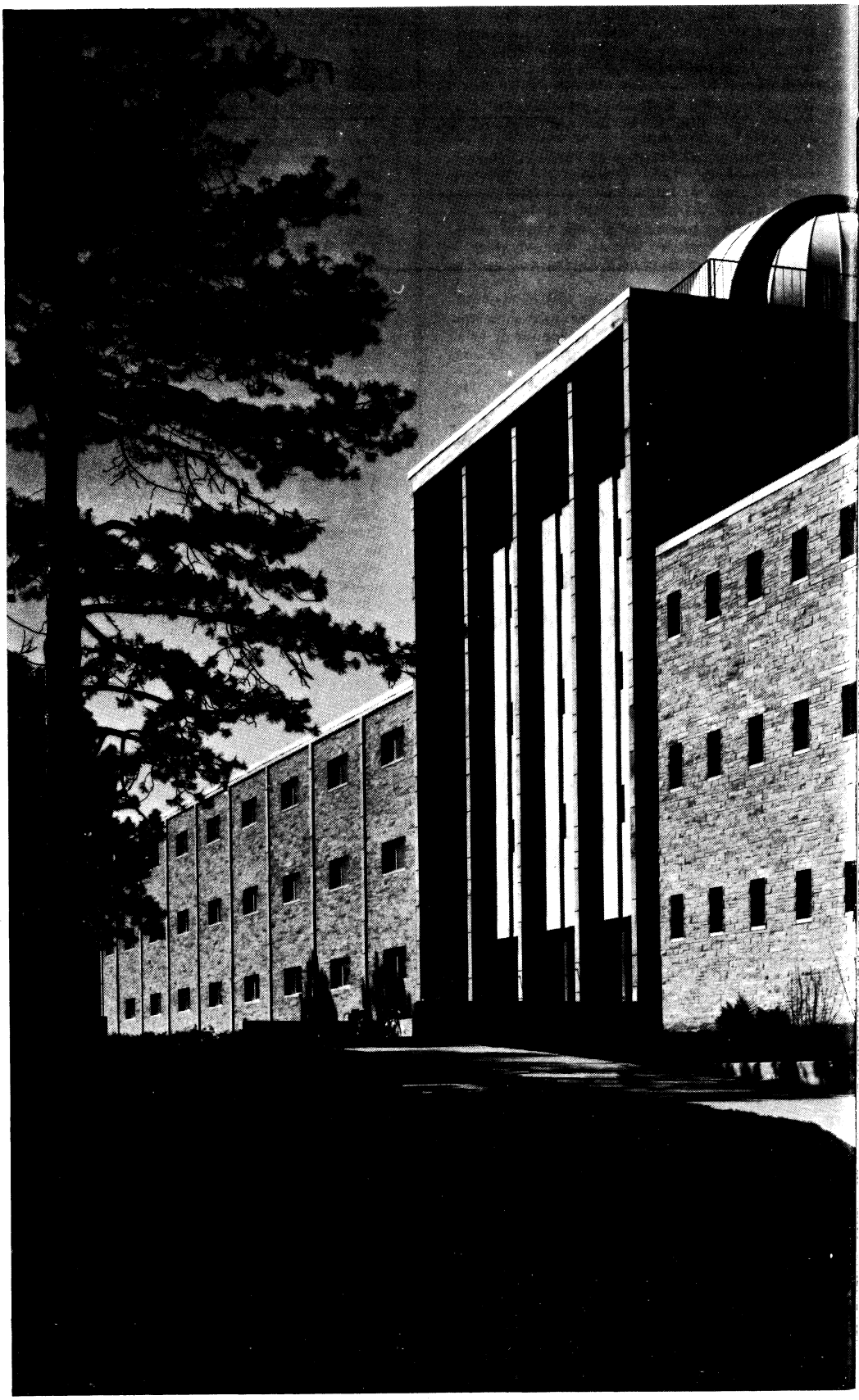
- Formal Language Theory—Theory of grammars, formal languages, formal semantics.
- Natural Languages and Symbol systems—Computational linguistics, pattern generation in the humanities and fine arts, sound synthesis and analysis.
- Automata and Mathematical Logic — Theory of automata, computability, recursive function theory.
- Machine Systems.
- Information Systems Theory and Design—Analysis of information networks, information acquisition, social implications of information systems.

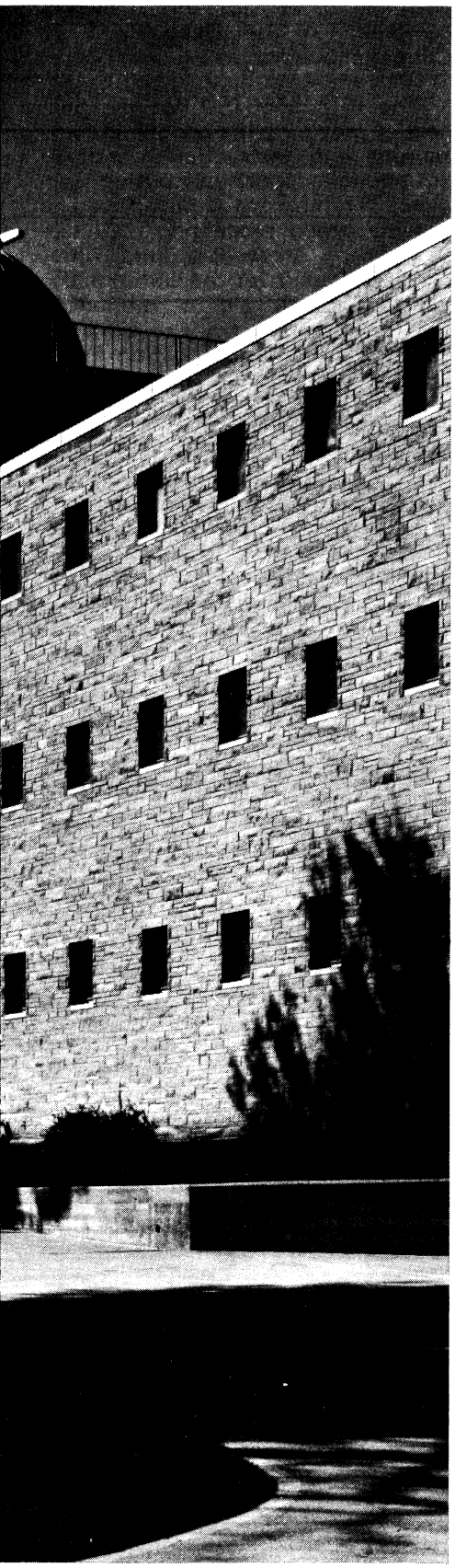
Areas of Current and Essential Interest to Both Campuses

- Numerical Analysis.
- Artificial Intelligence.

Identified with Kansas State University

- Machine Languages—Language processors, conversational languages, extensible languages.
- Computer Design and Architecture—~~Computer logic, switching theory.~~
- Programming Systems.
- ~~Biological and Ecological~~ Systems Simulation.
- Data Organization and Manipulation—File management and data processing, information storage and retrieval, text processing.





Faculties and Specialties

COMBINED FACULTIES

Nasir Ahmed, Associate Professor (KSU) (jointly with Electrical Engineering) *
Ph.D., Electrical Engineering, New Mexico, 1966
Scientific data processing techniques, pattern classification, communication theory, information theory, network analysis

Zamir Bavel, Associate Professor (KU) *
Ph.D., Mathematics, Illinois, 1965
Automata theory

Paul T. Boggs, Assistant Professor (KU) *
Ph.D., Computer Science, Cornell, 1970
Numerical analysis

Richard Brewer, Assistant Professor (KSU)
M.S., Journalism, University of Wisconsin, 1964
Computational linguistics and information retrieval

William G. Bulgren, Associate Professor (KU) (jointly with Computation Center) *
Ph.D., Statistics, Iowa, 1965
Languages, simulation, computational statistics

Myron A. Calhoun, Assistant Professor (KSU) (jointly with Electrical Engineering) *
Ph.D., Electrical Engineering, Arizona State, 1967
Hardware design and implementation systems

John Case, Assistant Professor (KU) *
Ph.D., Mathematics, Illinois, 1969
Recursive functions, logic, automata

Kenneth Conrow, Associate Professor (KSU) *
Ph.D., Organic Chemistry, Illinois, 1957
Computer generation of organic nomenclature, computer applications to lattice theory

Paul S. Fisher, Assistant Professor (KSU) *
Ph.D., Computer Science, Arizona State University, 1969
Programming languages, artificial intelligence and systems

Tom L. Gallagher, Associate Professor (KSU) (Director, Computing Center) *
D.Sc., Applied Mathematics and Computer Science, Washington University, 1967
Mathematical programming, information storage and retrieval and biomedical data processing

Richard G. Hetherington, Associate Professor (KU) (jointly with Mathematics and Computation Center) *
Ph.D., Mathematics, Wisconsin, 1961
Numerical analysis

Floyd R. Horowitz, Associate Professor and Acting Chairman (KU) *
Ph.D., English, Iowa, 1960
Language analysis and humanities computation

Lois E. Mansfield, Assistant Professor (KU) *
Ph.D., Mathematics, Utah, 1969
Numerical analysis

Michael H. Miller, Assistant Professor (KSU) (assistant director, Computing Center)
M.S., Statistics, Iowa State, 1961
Operating systems, programming languages

Harold Sackman, Professor and Head (KSU) *
Ph.D., Psychology, Fordham, 1953
Man-computer problem solving, real time systems, online planning, mass information utilities, computer-aided social experimentation

Earl J. Schweppe, Professor (KU) *
Ph.D., Mathematics, Illinois, 1955
Systems, languages, data structures

Sally Yeates Sedelow, Professor (KU) (jointly with Linguistics) *
Ph.D., English, Bryn Mawr, 1960
Humanistic and linguistic computation, pattern generation and recognition

Walter A. Sedelow, Jr., Professor (KU) (jointly with Sociology) *
Ph.D., History, Harvard, 1957
Language analysis, human factors, information systems, and public applications

Richard F. Sincovec, Assistant Professor (KSU) *
Ph.D., Applied Mathematics, Iowa State University, 1968
Numerical analysis

Thomas N. Trump, Assistant Professor (KSU)
M.S., Computer Science, Purdue University, 1966
Systems programming and numerical analysis

Douglas Tuggle, Assistant Professor (KU) (jointly with Business School) *
Ph.D., Industrial Administration, Carnegie Mellon, 1970
Cognitive processes

Elizabeth A. Unger, Assistant Professor (KSU) (Associate Director, Computing Center)
M.S., Mathematics, Michigan State University, 1963
Information storage and retrieval programming language, program libraries

Roger Weinberg, Associate Professor (KSU) *
Ph.D., Zoology (Genetics), University of Texas, 1954
Ph.D., Computer Science, University of Michigan, 1970
Computer simulation of eco-systems and computer systems, model simplification for purposes of simulation

* Authorized to direct doctoral dissertation research.

The Ph.D. Program in Computer Science at Kansas State University and the University of Kansas

Facilities and Resources

V. FACILITIES AND RESOURCES

Libraries:

Both Kansas State University and the University of Kansas have been expanding their holdings in computer science and closely related fields at a rate commensurate with the rapid expansion of this active discipline. Thus the doctoral student will have access to excellent library resources in all areas of computer science. Accessibility is enhanced by a courier service which operates between the libraries.

Computers:

At the University of Kansas

The main general purpose computer at the University of Kansas is a GE/Honeywell 635 with 200,000 36-bit words of memory, a complete collection of peripherals including eight removable disc storage units and eight magnetic tape drives providing the user the ability to have tapes and discs for his personal work. The 635 is interfaced through a communications processor, the Datanet 30. There are 50 remote interactive terminals on campus which include Teletype mod 33, Terminet 300, Datanet 760, Datapoint 3300, Datapoint 3000, and Datapoint 2200 terminals. A variety of these terminals is available in a single classroom for teaching and research activities. An IBM 1401 with 8,000 characters of core memory and four tape drives, a stand-alone digital incremental plotter with a 36-inch drum and the usual complement of unit record equipment are also available to support research and teaching activities. Four special purpose computers are installed on campus and are available by arrangement with the local departments. These include an IBM 1800 in the Physics Department, two Hewlitt-Packard 2116Bs in the Chemistry Department, and a PDP 15/20 in the Electrical Engineering Department.

The 635 provides local batch processing, remote batch processing and time-sharing concurrently using an integrated file system. In addition to powerful systems software, 15 language processors and more than 20 applications program packages are available to the user. Detailed descriptions of services and procedures are contained in the booklet "Guide for Using Computer Facilities," available from the Kansas University Computation Center.

At Kansas State University

The main general purpose computer at Kansas State University is an IBM System 360/50 with 131,000 bytes of fast core and 1 million bytes of slow core. It also has removable disc drives, tape units, and a four line communications adapter. There are six interactive terminals including IBM 2741's and a Datel 30. An IBM 1230 Optical Mark Sense Reader and Calcomp 663 Digital Incremental Plotter are available at the Kansas State University Computing Center. Four additional digital computers are installed on campus and are available by arrangement with the local department. These include a Univac Athena and a NOVA computer in the Department of Electrical Engineering, a PDP 15/30 in the Department of Physics, and a NOVA computer in the Department of Computer Science.

The IBM S360/50 has the purpose of providing the academic community with instructional and instructional-support computing service. The machine is partitioned to provide batch processing, self-service batch processing, and time-sharing support for the communications terminals. It is run using IBM's Operating System with the Houston Automatic Spooling Priority (HASP) program to provide accounting and service the job queue, and the Baylor Executive System for Teleprocessing (BEST) to provide the time-sharing environment for the terminals. Seventeen language processors and 15 major applications packages are presently available to the user. Detailed descriptions of services and procedures are contained in the "Kansas State University Computing Center Users Guide," which is available from the Computing Center.

DECLARATION OF INTENT

to enter the

COMPUTER SCIENCE DOCTORAL PROGRAM

Jointly Offered by the

UNIVERSITY OF KANSAS AND KANSAS STATE UNIVERSITY

(Complete and send to Chairman, Graduate Studies Committee, at Institution you name below)

Name _____ Date _____

Social Security Number _____

Address _____

I hereby apply for acceptance as an aspirant in the Doctor of Philosophy Degree Program in Computer Science jointly offered by the Computer Science Departments at the University of Kansas and Kansas State University. I presently plan to complete my work for this degree at

_____
(Name of Institution)

Remarks:

Date _____ Signature _____
(Applicant)

The above graduate student in Computer Science is hereby recommended as an aspirant for the Doctor of Philosophy Degree in Computer Science.

Remarks:

Date _____ Authorized Signature _____
(Chairman, Graduate Studies, Named Institution)

The above graduate student in Computer Science is hereby accepted as an aspirant for the Doctor of Philosophy Degree in Computer Science.

Remarks:

Date _____ Authorized Signature _____
(Chairman, Graduate Studies, Other Institution)