A

RESEARCH and EDUCATION

RESUME

January 1987

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INTRODUCTION

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 19,000 full-time students in 1983 to become one of the major educational institutions in America. K-State is fully accredited by the North Central Association of Colleges.

Launched primarily as an 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 61 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 30,000 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 Air Midwest and Capitol 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 COMPUTING AND INFORMATION SCIENCES

The Computing and Information Sciences Department in the 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. A summer Computer Science graduate program brings 70 A T & T professionals to campus each summer.

The department has 13 full-time faculty and 45 graduate assistants. In addition, 15 faculty at the University of Kansas are adjunct in the Ph.D. program. Currently, there are 500 undergraduate majors, 150 Master's Degree students and 20 Ph.D. students enrolled on campus.

The Ph.D. program in Computer Science is offered jointly by KSU and the University of Kansas at Lawrence, Kansas. Although each University awards the Ph.D. 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 experimental 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.

In August 1985, the department moved to new facilities in Nichols Hall. This has dramatically increased both the quantity and quality of space for faculty, staff, students, classrooms, and laboratories. Nichols Hall has an interesting history. It was originally a gymnasium from the early 1900's to 1969 when it burned down. Its "castle-like" native limestone shell remained standing until 1982 when construction began to build a completely new building inside the old castle's shell. Thus the Computing and Information Sciences Department could be billed as a "high- tech department in a medieval architecture". It is a pleasing environment in which to work and study. In addition, a substantial equipment budget has made it possible for each faculty member to have a PC in each office; and an integrated network system interconnects all PC's, mini-computers and the campus main-frame.

RESEARCH
COMPUTING AND INFORMATION SCIENCES DEPARTMENT, KSU

Overview

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, artificial intelligence, data management systems, computer graphics, expert systems, 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 programming languages, computer networks, network operating systems, and distributed computing software. This emphasis is in reaction to the expanding use of minicomputers and microcomputers in information 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 Ph.D. candidates under supervision of the faculty. Facilities available in support of research include the University Computing Center, the Computing and Information Sciences 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 this partial list of graduate courses currently offered:

Artificial Intelligence
Computer Graphics and Image Processing
Computer Networks
Computer Systems Simulation
Data Base Management Systems
Expert Systems
Microcomputer Programming and Applications
Office Automation
Operating Systems
Software Engineering
Theory of Parsing
Translator Design

Appendix 1

COMPUTING RESOURCES AT KANSAS STATE UNIVERSITY

Computing resources at K-State include the University Computing Center, and the Computing and Information Sciences Department's Computing Laboratory. 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 Laboratory in the Department of Computing and Information Sciences

The Computing Laboratory is a facility of the Department of Computing and Information Sciences and supports research and graduate instructional requirements. The principal facilities of the Lab are minicomputers and personal computers. The computers can operate individually, in a network and in a link to the NATIONAL 6130 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:

3	Xerox 1186 AI Workstations	Each 4	Meg bytes
3	Ethernet local area network	50	Ports
1	Vax 11/780 running UNIX (Berkeley)	16	Meg bytes
2	Motorola 68000 systems running UNIX (V.2)	2	Meg bytes
3	Columbia Data Products PC's	256K	bytes
40	Zenith Z-150A	320K	bytes each
20	Apple Macintosh + Appletalk		
1	Equinox Data Switch	200	Ports
15	AT&T 3B2 Computers running UNIX (V.2)	2	bytes each
1	AT&T 3B5 Computer running UNIX (V.2)	8	Meg bytes
1	AT&T 3B15 Computer running UNIX (V.2)	8	Meg bytes
10	AT&T PC 6300's	640k	each
60	AT&T Unix PC's	1	Meg each
1	Harris HCX-9 running UNIX	8	Meg

The peripheral equipment includes:

80	CRT terminals		
1	Chromatics Color Graphics System	64K	bytes
1	Portable printing terminal, T1700		
6	Magnetic tape units		
1	Color graphics printer		
10	Line printers		
3	Letter quality printers		
7	Graphics printers		
	Disk subsystems totaling 4 gigabytes		
3	Laser printers		
1	AT&T Videotex System		

More than 150 unique software systems are available in the Computing and Information Sciences Computing Laboratory including:

ML
C, Concurrent C, and C++
Telesoft Ada
Pascal
Concurrent Pascal and a concurrent symbolic debugger
Turbo Pascal
Modula-2
APL
Edison
UCSD Pascal
FORTRAN
UNIX System V
Berkley UNIX
Simula
BASIC
GKS color graphics
Prolog
Common Lisp
LOGO
Network software (TCP/IP)
CSNET
Office automation software
CPM/86
MS DOS
INGRES DBMS
Informix DBMS
Oracle DBMS
DBASE II, III, III+
Various micro-processor operating systems
Numerous micro- and minicomputer application programs
Exper OPS5
Lotus 123
LOOPS
OBJ

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 a NATIONAL 6130 with 8 megabytes of main memory and 1,500 megabytes of associated direct access storage. Users can access the computer through a combination of batch service, local terminals and several remote typewriter and card reading terminals.

Operating systems include:

OS/MFT VM/370

Interactive systems

APL CMS

Languages

ALGOL-60	LISP 1.5	SPITBOL	RPG II
BAL	PL/1	WATBOL	WPASCAL
COBOL	PL/C	WATFIV	WBASIC
FORTRAN	SNOBOL4	PASCAL	

Applications

BMD	GPSS	SPSS
CSMP	MPS/360	SAS
FORMAC	NEATER2	SURFACE2

DBMS

Total
IDMS
S2000

Other University Facilities

The other facilities at K-State include several NOVA computers and a VAX in the Department of Electrical Engineering, Physics and several PDP minicomputers in the Departments of Physics, Chemistry, Psychology, Biochemistry, Ag Engineering and Chemical Engineering. 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 4341 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 Honeywell DPS 3/E with 768K (words) of memory. The full set of the common high-level languages is available to KSU users as are numerous application program packages.

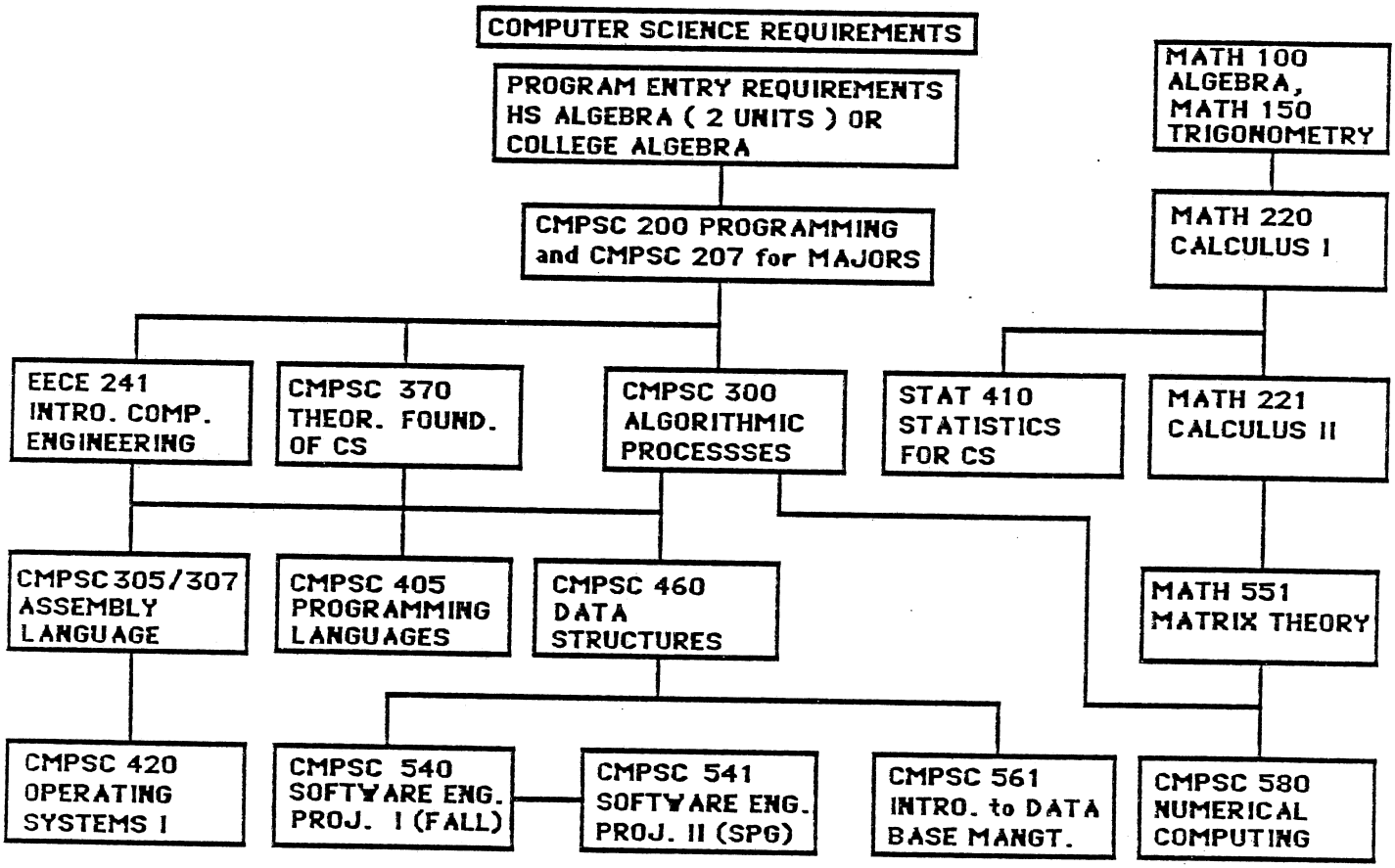
KANSAS STATE UNIVERSITY

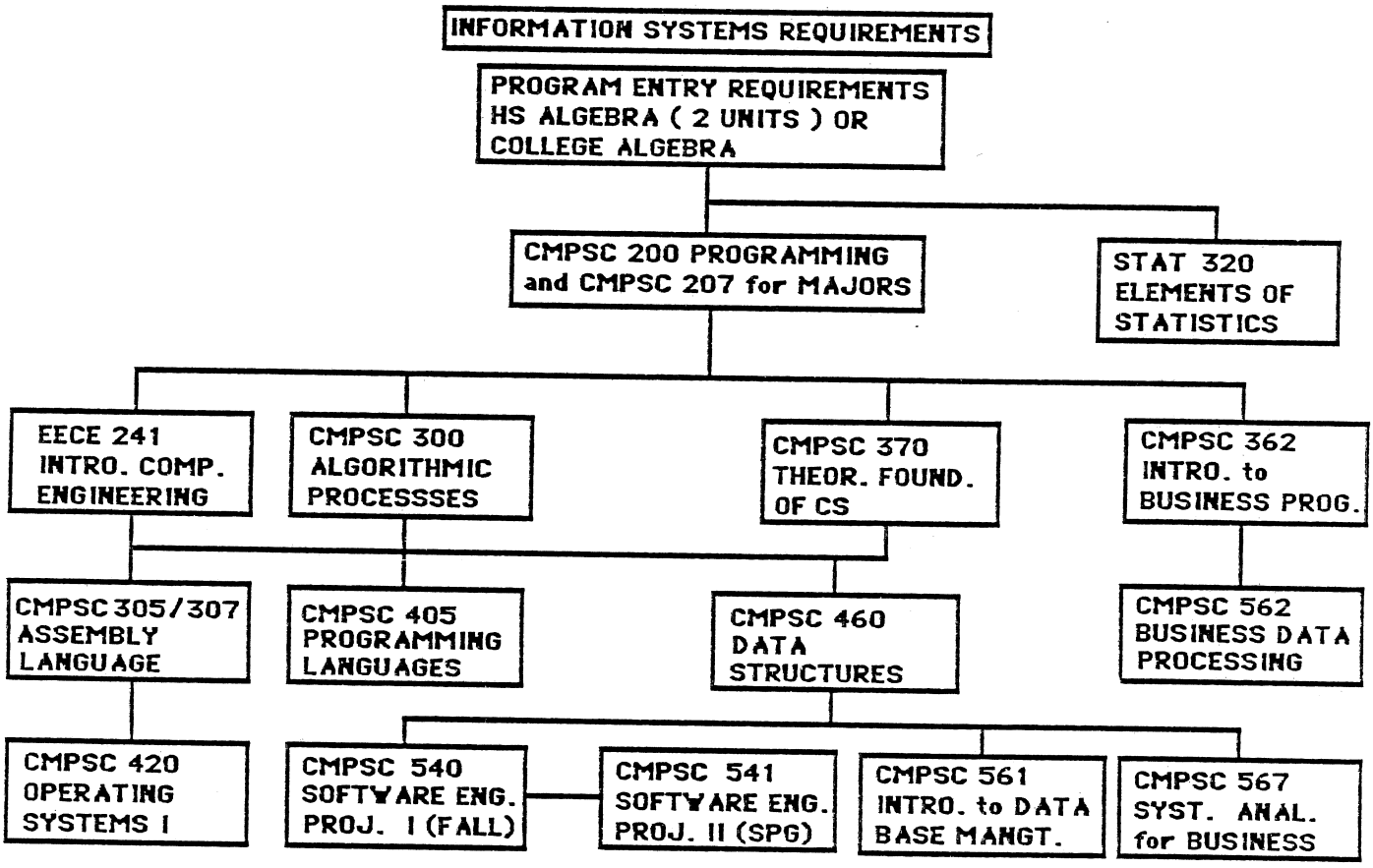
GUIDE TO REQUIREMENTS

FOR

MAJORS IN COMPUTER SCIENCE & INFORMATION SYSTEMS

To major in computer science or information systems you must meet the general requirements of the University, the requirements of the College of Arts and Sciences, and the requirements of the Department of Computer Science (all of which are listed in the General Catalog). The requirements for the BS and BA degrees are outlined on the sample curriculum guide check sheets. An up-to-date copy of the curriculum guide should be kept in your folder in the CS office for your use during advising. Please update your guide form when you pick up your enrollment permit and take the updated version with you when you see your advisor. Please return it to the CS office - Nichols Hall 234 - after you have been advised.


COMPUTER SCIENCE REQUIREMENTS
PROGRAM ENTRY REQUIREMENTS HS ALGEBRA (2 UNITS) OR COLLEGE ALGEBRA
MATH 100 ALGEBRA, MATH 150 TRIGONOMETRY
CMPSC 200 PROGRAMMING and CMPSC 207 for MAJORS
MATH 220 CALCULUS I
EECE 241 INTRO. COMP. ENGINEERING
CMPSC 370 THEOR. FOUND. OF CS
CMPSC 300 ALGORITHMIC PROCESSSES
STAT 410 STATISTICS FOR CS
MATH 221 CALCULUS II
CMPSC 305/307 ASSEMBLY LANGUAGE
CMPSC 405 PROGRAMMING LANGUAGES
CMPSC 460 DATA STRUCTURES
MATH 551 MATRIX THEORY
CMPSC 420 OPERATING SYSTEMS I
CMPSC 540 SOFTWARE ENG. PROJ. I (FALL)
CMPSC 541 SOFTWARE ENG. PROJ. II (SPG)
CMPSC 561 INTRO. to DATA BASE MANGT.
CMPSC 580 NUMERICAL COMPUTING


INFORMATION SYSTEMS REQUIREMENTS
PROGRAM ENTRY REQUIREMENTS HS ALGEBRA (2 UNITS) OR COLLEGE ALGEBRA
CMPSC 200 PROGRAMMING and CMPSC 207 for MAJORS
STAT 320 ELEMENTS OF STATISTICS
EECE 241 INTRO. COMP. ENGINEERING
CMPSC 300 ALGORITHMIC PROCESSSES
CMPSC 370 THEOR. FOUND. OF CS
CMPSC 362 INTRO. to BUSINESS PROG.
CMPSC 305/307 ASSEMBLY LANGUAGE
CMPSC 405 PROGRAMMING LANGUAGES
CMPSC 460 DATA STRUCTURES
CMPSC 562 BUSINESS DATA PROCESSING
CMPSC 420 OPERATING SYSTEMS I
CMPSC 540 SOFTWARE ENG. PROJ. I (FALL)
CMPSC 541 SOFTWARE ENG. PROJ. II (SPG)
CMPSC 561 INTRO. to DATA BASE MANGT.
CMPSC 567 SYST. ANAL. for BUSINESS

NAME _____ MAJOR _____

ADDRESS _____ DEGREE _____

DATE _____

Courses for Computer Science Major

Anal. Geom & Calc I	M220	4
Anal. Geom & Calc.II	M221	4
Stat. for Comp Sci	S410	3
App. Matrix Theory	M551	3
Numerical Comp	CS580	3

Courses for Information Systems Major

Elem. of Statistics	S320	3
Intro Bus. Program	CS362	3
Bus. Data Program	CS562	3
Systems Analysis	CS567	3

Basic Requirements For Both Degrees

See Current Listing For Courses That Fulfill Requirements

English Comp I	3
English Comp II	3
Oral Comm.	2-3
Concepts PE	1

Courses required for BOTH Majors

Fund. of Computer Programming	CMPSC 200	2
PASCAL Language Laboratory	CMPSC 207	2
Intro. to Computer Engineering	EECE 241	3
Algorithmic Processes	CMPSC 300	3
Computer Organization & Prog IA	CMPSC 305	3
or		
Computer Organization & Prog IB	CMPSC 307	3
Theoretical Found. of Compt. Sc	CMPSC 370	3
Intro. to Programming Languages	CMPSC 405	3
Operating Systems I	CMPSC 420	3
Data Structures	CMPSC 460	3
Software Engineering Project I	CMPSC 540	3
Software Engineering Project II	CMPSC 541	3
Intro. to Data Management Systems	CMPSC 561	3

Plus 15 hrs technical electives approved by advisor

1. _____ ___
2. _____ ___
3. _____ ___
4. _____ ___
5. _____ ___
6. _____ ___
7. _____ ___

Courses for BA Degree

Humanities 4 Courses 12

1. Fine Arts _____ ___
2. Philosophy _____ ___
3. Western Heritage _____ ___
4. Literary or Rhetorical Arts _____ ___

Social Sciences 4 Courses 12

1. _____ ___
2. _____ ___
3. _____ ___
4. _____ ___

Natural Sciences 3 Courses 11

1. Life Science w/ Lab _____ ___
2. Physical Science w/ Lab _____ ___
3. Life or Physical Science _____ ___

Foreign Languages 4 Courses 15

1. _____ ___
2. _____ ___
3. _____ ___
4. _____ ___

Math 1 Course 3

1. _____ ___

Internat'l Overlay 1 Course 3

1. _____ ___

Courses for BS Degree

Humanities 4 Courses 11

1. Fine Arts _____ ___
2. Philosophy _____ ___
3. Western Heritage _____ ___
4. Literary or Rhetorical Arts _____ ___

Social Sciences 4 Courses 12

1. _____ ___
2. _____ ___
3. _____ ___
4. _____ ___

Natural Sciences 4 Courses 14

1. Life Science w/ Lab _____ ___
2. Physical Science w/ Lab _____ ___
3. Life or Physical Science _____ ___
4. Course w/ prerequisite in the same department. _____ ___

Internat'l Overlay 1 Course 3

1. _____ ___

Note: Quantitative requirements are met by majoring in CS or IS

AREAS OF TECHNICAL ELECTIVES: (EXAMPLES)

1. Business Electives

286 306 Operating Systems Laboratory
286 662 Business Data Processing (COBOL II)
286 765 EDP Systems Analysis
305 260 Fundamentals of Accounting
305 270 Managerial Cost Accounting

2. Computer Software Electives (also the core of the MS program)

286 740 Introduction to Software Engineering
286 700 Translator Design I
286 720 Operating Systems II
286 760 Information Organization and Retrieval

3. Scientific Computing Electives

245 222 Analytic Geometry and Calculus III
245 240 Series and Differential Equations
286 780 Numerical Solution of Ordinary Differential Equations
286 785 Numerical Solution of Parial Differential Equations
550 571 Introduction to Operations Research II
286 710 Computer Simulatin Expeiments

4. Mini/Micro Computer Systems

286 658 Microcomputer Programming and Applicants
286 750 Computer Architecture Experiments
EE 641 Design of Digital Systems
EE 643 Computer Logic Laboratory

LIST OF COURSES THAT FULFILL DEGREE REQUIREMENTS

as of August, 1986

English Composition I & II
Public Speaking (or Argumentation & Debate)
Concepts of Physical Education
Humanities: 4 courses 11 hrs. minimum

Up to 2 courses from a single dept. may be used to fulfill the distribution requirements set forth in this section. They may be used at the same time to count toward the major. No course may be used to satisfy more than 1 specific requirement in this section. Only courses taken for 2 or more credit hrs. satisfy these requirements. (Exception: Music Performance areas 252-799=1+1)

1. Fine Arts: 1 course
   - Art technique courses 200-799, art history or Intro to Museum Studies 305
   - Dance technique courses 323, 324, 325, 326, 371 or Dance as an Art Form
   - History of Dance 459
   - *Music courses 200, 201, 250, 310, 385, 420, 422, 424, 555, 570, 601, 602, 650, or Studio-Perfor. areas 252-799
   - Theatre courses 260-799
2. Philosophy: 1 course
   - Except: Intro. Formal Logic 110, Symbolic Logic I 220, Comparative Religion 310, Sym. Logic II 510
3. Western Heritage: 1 course
   - *History courses in Greco-Roman, Western European or No. Amer. fields
   - Women's Studies—Intro. 105, Sr. Seminar 405
   - Humanities (English)
     Courses 230, 231, 233, 234
   - Modern Language
     Courses 514, 530, 565, 566
   - Constitutional Law (Pol. Science)
     Courses 613, 614, 615, 616, 799
   - Political Thought (Pol. Science)
     Courses 301, 661, 663, 667, 671, 675 or (Sociology) 709
4. Literary or Rhetorical Arts: 1 course
   - *English courses in literature or creative writing 250-799 except 301, 400, 401, 405, 415, 416, 492, 499, 520, 530, 796
   - *Modern Language literature courses including literature in translation
   - Speech 330, 332, 725, 730, 732, 733
   - Theatre courses 562, 764, 770, 771, 772, 773, 774, 776

BS Degree only: Two courses in one foreign language will satisfy the requirements of 3 & 4.

Social Sciences: 4 courses from 3 disciplines
12 hrs. minimum

Up to 2 courses from a single dept. may be used to fulfill the distribution requirements set forth in this section. They may be used at the same time to count toward the major. One course must be 500-799 level or carry a prerequisite in the same department.

At least 3 of the 4 courses must be from: Psychology, Sociology, Cultural Anthropology, (including Archaelogy), Economics, Political Science, History, Geography, (except Environmental I 220 & II 221)

The 4th courses must be from 1 of the above or from the following:

- Women's Studies—Intro. 105, Sr. Sem. 405
- Gerontology—Intro. 315, Sr. Sem. 415
- Physical Education—Soc. Dimen. 340 or Motor Dev. & Learn. 320
- Speech— Analysis of Experimental Research Lit. in Speech 520, Nonverbal Comm. 323, Perspec. on Comm. 620, Comm. Res. Methods 721, Sem. in Persuasion 726
- Journalism & Mass Communications— Survey of Mass Media 235, Women and the Media 612, Minority Press in America 645, Hist. of Journalism 660, Law of Mass Comm. 665, The Mass Communicators Ethics & Issues 685
- Radio-Television--Hist. of Telecomm. 660 or RTV Crit. 675

Natural Sciences:

BS Degree—4 Courses/14 hr. min.
BA Degree—3 courses/11 hr. min.

Courses that fulfill this requirement may be used at the same time to count toward the major. No course may be used to satisfy more than 1 specific requirement in this section. Only courses taken for 2 or more credit hours satisfy these requirements & courses in excess of 5 cr. hr. count as 2 courses.

1. A Life Science with Lab
2. A Physical Science with Lab
3. A Life or Physical Science
   - Life Sciences: Biol., Biochem., Paleobiol. (Geol) 581, Paleoecology 704, Intro. Phys. Anthro. 280, 281, Fossil Man & Human Evol. 688, Primatology 691, Osteology 694, Osteol., Lab 695
   - Physical Sciences
     Physics, Chemistry, Environ. Geog. I 220 & II 221 only, Geol. except Paleobiol. 581, Paleoecol. 704
4. BS Degree only: 1 course (3 cr. hr. min.) with a prerequisite in the same dept. chosen from the following:
   - Life or Physical Science listed in #3, Biochemistry courses with a chemistry prerequisite, Phys. Ed: Kinesiology 330, Physio. of Exercise 335, Psychology: Fund. of Percep. & Sensation 480, Comp. Psych. 616

Quantitative and Abstract Formal Reasoning: BS ONLY. Courses used for this requirement may also satisfy any major requirement for which it qualifies. Select one of the following three options:

1. Three courses from:
   Math, Statistics, Comp. Sci., Philosophy—Intro. Formal Logic 110, Symbolic Logic I 220, Symbolic Logic II 510 only.
2. One of the following pairs:
   -General Physics I 113 & Trig. 150
   -Quantitative analysis in Geog. 700 & Stat. I level course
   -Methods in Social research 520 & Stat. I level course
   -Intermed. Quantitative Methods 725 & Stat. I level course
   -Measurement & Evaluation in PE 710 & Stat. I level course
3. Level II: 2 courses
   Math—Col. Algebra & Trig. 125, Plane Trig. 150, Precalculus Math 170, Applied Math 201, General Calc. & Linear Algebra 205
   Statistics--Elem. of Statistics 320, Elem. Statistics for the Social Sciences 330, Biometrics I 340, Business & Econ. Stat. I 350, Statistical Methods for Social Sciences 702, Statistical Methods for Nat. Sciences 703
   Philosophy—Symbolic Logic II 510
   Computer Science—Fund. of Comp. Prog. 200 & one of the following: Fortran 201, PL/1 202, Basic 206, Pascal 207, Fortran/ Engg. 211
   —OR—
   Level III: 1 course
   Math—Technical Calculus I 210, Analytic Geometry & Calc. I 220, Anal. Geom. & Calc. I-S 225
   Statistics--Biometrics II 341, Business & Econ. Stat. II 351, Analysis of Variance & Covariance 704, Regression & Correlation Analysis 705
   Philosophy—topics in Metalogic 701
   Computer Science—Algorithmic Processes 300, Comp. Organ. & Prog. IA 305

Foreign Language: 4 courses 15 hours BA Degree only. One of the foreign language sequences offered by the Dept. of Modern Languages or equivalent competency.

Mathematics: 1 course 3 hours BA Degree only. 100-799 level course offered by the Dept. of Mathematics, or any other course for which there is a mathematical prerequisite. Any course used to satisfy this requirement cannot be used to satisfy any other general education requirement.

International Overlay: This course may also satisfy a requirement in the major, social sciences, or humanities. The 4th course in a single foreign language sequence (other than Latin) will satisfy this requirement.

Anthropology—Intro. Cultural 200, Intro. to Archeology 260, Civ. of South Asia I 505, Civ. of South Asia II 506, Folk cultures 507, Male & Female 508, Cultural Ecology & Econ. 511, Pol. Organ. in Folk & Nonliterate Cultures 512, Black Cultures of the Americas 536, Cultures of India & Pakistan 545, Cultures of Africa 550, Culture & Personality 604, Religion in Culture 618,Indians of No. Amer. 630, Indian Cultures of So. Amer. 634, Precolumbian Civ. of Mexico & Guatamala 673 Archeology of the Old World 676

Economics—Civ. of So. Asia I 505, Civ. of so. Asia I 506, Capitalism & Socialism 636, Intern'l Trade 681, Underdeveloped Countries 682

Geography—World Regional 100, Latin Amer. 620, Europe 640, Soviet Union 650, Geography of Hunger 710, World Population Patterns 715

History—Russian Culture & Civ. 250, Gandhi & Indian Revol. 350, Hist. of Hinduism 504, Civ. of So. Asia I 505, Civ. of So. Asia II 506, World War II 514, U.S. & World Affairs 1776-Present 543, U.S. & Soviet Relations since 1917 544, War in 20th Cent. 545, Colonial Hispanic Amer. 561, Mod. Mexico 562, Russian Revol. & Soviet Sys. 564, European Diplomatic Hist. to Napoleon 576, European Diplomatic Hist. since Napoleon 577, Russia to 1801 591, Grandeur & Decline of Imperial Russia 592, Topics Russian Hist. 593, Topics in Non-Western Hist. 598

Journalism & Mass Communciations— International Communications 670

Management—Intern'l Business (Bus. Adm.) 690

Marketing—Intern'l Marketing (Bus. Adm.) 544

Modern Languages—Russian Culture & Civ. 250, Russian Lit. in Translation: 19th Cent. 504, Russian Lit. Translation: Soviet Period 508, Survey Russian Lit. 552

Philosophy—Comparative Religion 310

Political Science—World Politics 333, Civ. of So. Asia I 505, civ. of So. Asia II 506, Contemp. Chinese Pol. 511, Pol. of Dev. Nations 545, Latin Amer. Pol. 622, So. Asian Pol. Sys. 623, Mid. East Pol. Sys. 624, SE Asian Pol. Sys. 625, African Pol. 626, Soviet Style Regimes 627, Compar. Security Estab. 628, Admin. in Dev. Nations 629, Intern'l Relations 541, Intern'l Conflict 642, Amer. For. Policy 543, Intern'l Pol. Europe 645, Intern'l Law 647, Intern'l Defense Strag. 649, Intern'l Organ. 651, Intern' Pol. So. Asia 652, Intern'l Pol. Mid East 653

Sociology—Civ. of So. Asia I 505, Civ. of So. Asia II 506, Soc. & Change So. Asia 742.

GUIDELINES

FOR THE

MASTER OF SCIENCE DEGREE

IN THE

DEPARTMENT OF COMPUTING AND

INFORMATION SCIENCES

KANSAS STATE UNIVERSITY

JANUARY 1987

GRADUATE STUDIES COMMITTEE

Dr. David A. Gustafson - Chairperson
Dr. William J. Hankley
Dr. David A. Schmidt
Joseph Campbell - Administrative Assistant

I. INTRODUCTION

These guidelines set forth departmental and university standards for attainment of a Master of Science (MS) Degree in Computer Science. Students are expected to adhere to these standards. If exceptions are warranted, the student's advisor must be consulted to determine legitimate, alternate means of meeting the standards. Additional information is published every semester in the "Student Guide for Masters and Doctoral Degrees," which is available from the Graduate School Office and in the "Graduate Student Handbook," published by the Graduate Student Council.

The guidelines stated herein are those of the faculty of the Computer Science Department at KSU. Certain other regulations are imposed by the KSU Graduate School and are described in the "Graduate Faculty Handbook." It is the student's responsibility to know and satisfy all relevant requirements. It is the responsibility of the Graduate Studies Committee of the Department of Computer Science at KSU to oversee the application of these guidelines.

The Graduate Studies Committee promises to keep the student informed of the committee's view of his or her progress towards the graduate degree. In keeping with this commitment, an annual review of all graduate students is performed each January, and an evaluation of each student's progress is written. This evaluation is transmitted to the student and a copy is placed in the student's permanent and open record.

A graduate student must maintain a 3.00 overall grade point average to be considered a graduate student in good standing. A student who does not maintain satisfactory progress in graduate studies is subject to being placed on probation or being denied the privilege of continued enrollment in the university. The Dean of the Graduate School will notify a student if such action is taken.

Formal writing is considered an integral part of a student's acquisition of a Master of Science degree in Computer Science. A MS student (whether of full, provisional, or probationary standing) is required to take CMPSC 897, Graduate Seminar, the first semester that the course is offered after the student begins graduate level work. The CMPSC 897 instructor reviews a 5-10 page paper that the student writes for the course. Based upon the evaluation of that paper, the student may be required to take English 516.

The Department sets high standards for the quality of written communications of its graduate students. Pursuant to that policy, supervisory committees and major professors evaluate the quality of material written by their students. If it becomes clear that a student needs to improve writing skills, courses such as English 516, Written Communication for the Sciences, are added to the student's requirements for graduation.

Graduate students are also expected to participate in the professional activities of the Department. This includes attending seminars and colloquia, suggesting improvements in curriculum (both graduate and undergraduate), and suggesting new teaching techniques.

II. ADMISSION

The "Directions for Applying for Graduate Studies in Computer Science" manual gives detailed information regarding the application process. A students who is admitted will be admitted in full standing, provisional standing, or probational standing. (See the "Graduate Student Handbook" for further information.) To be admitted with full standing, a student must have experience in programming with block-structured and assembly languages and have completed or demonstrated competence in the areas defined by the content of the following KSU Computer Science courses: CMPSC 370, CMPSC 405, CMPSC 420, CMPSC 460, CMPSC 540, and CMPSC 561.

III. REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE

A candidate for the Master's degree is required to spend one academic year in residence. Under special conditions, the residence requirement may be reduced. A minimum of 30 credit hours of graduate work must be earned. Each student must have an advisor and a Supervisory Committee to direct his pursuance of the degree. With the aid of the Supervisory Committee, each student must complete a Program of Study, which specifies the courses to be taken and the Program Option chosen to fulfill the M.S. requirement as defined in this document. (The Program Option is discussed below.) Upon recommendation of the Supervisory Committee and approval of the Graduate School, course work from other accredited graduate programs may become a part of a Program of Study. Each student must take a final oral examination. The requirements for each step in this process are defined on the following pages. In all cases, the time schedules of the Graduate School must be met.

A. Advisor and Supervisory Committee

During the first semester of residence, each student is assigned a faculty member to serve as an Academic Advisor. Normally, an Academic Advisor is assigned to a new student, but the student has the responsibility to acquaint himself with his advisor and initiate changes, if necessary. The Academic Advisor provides academic direction to the student and reviews the student's progress until a Major Advisor is selected.

During the first year in full standing as a graduate student, a student must select a subject area for his Program Option. The subject area must be mutually agreeable with some faculty member, who then becomes the student's Major Advisor and Chairman of the Supervisory Committee. Two additional members of the faculty must be selected to complete the Supervisory Committee.

B. Program of Study

Prior to the student's final semester, the student's Program of Study must be approved and submitted to the Graduate School. The Program of Study specifies the student's courses and Program Option. The Program of Study must be approved by all members of the Supervisory Committee. The student should present a written proposal for his Program Option to the Supervisory Committee when the Program of Study is formulated.

C. Specific Requirements for the M.S. Degree

A student's Program of Study must include the following six courses:

CMPSC 671 Programming Science (3 credit hours)
CMPSC 700 Translator Design I (3 credit hours; Prereq. 405, 305)
CMPSC 720 Operating Systems II (3 credit hours; Prereq. 420)
CMPSC 740 Software Engineering (3 credit hours)
CMPSC 761 Data Base Management Systems (3 credit hours; Prereq.561)
CMPSC 897 Graduate Seminar (1 credit hour)

A student must earn a grade of B or better in CMPSC 671, 700, 720, 740, and 761. These five courses are called the "Core Courses." In addition, a student must complete one advanced level Computer Science course which has a 700-level Computer Science course as a prerequisite.

Candidates for the M.S. degree must show competence in two areas: implementation and writing. This competence is demonstrated by the Program Option, which consists of an implementation component and a writing component.

The implementation component is satisfied by one of the following:

(a) efforts which yield new research results or a significant implementation project.
(b) successful completion of the course CMPSC 690, Implementation Projects.
(c) validated work experience. (All work presented for validation must be in the public domain and be well documented.)

The writing component is satisfied by one of the following:

(1) an M.S. thesis for three to six semester hours of credit.
(2) an M.S. report for two semester hours of credit.
(3) a publishable paper, which is submitted to a refereed conference or journal.

To achieve these requirements, a student (in consultation with the Supervisory Committee) selects either (a), (b), or (c), and either (1), (2), or (3) as the Program Option. The Supervisory Committee must approve the selected options.

If the student chooses either the thesis or report options ((1) or (2)), the thesis or report must meet the Graduate School standards. The report or thesis should represent the best writing possible by the student and is not to be written or extensively edited by the major professor. Candidates should begin writing their thesis or reports early enough so there will be time for review by the supervisor and rewriting by the student. Tentative copies of theses and reports are due in the major professor's office approximately two months prior to graduation. Approval forms are due in the graduate office approximately six weeks prior to graduation. The oral examination must be completed approximately one month before graduation, and a final copy of the written work must be approved about three weeks before graduation.

The Graduate School requires the submission of three copies of the report or thesis, two of which are archived and made available in the Library. For option (3), the student must

supply two copies of the paper, which is archived in the departmental library.

When all the course work has been completed and the requirements for the Program Option have been met, the student may request the Computer Science Department to schedule the final oral examination and must then inform the Graduate School of the time and place of the examination. This examination is normally scheduled approximately one month prior to graduation. The examination consists of a presentation of the student's Program Option work and a defense of the student's scholarly effort. The Supervisory Committee administers the examination and reports the results to the Graduate School. The student must distribute a copy of his writings to each member of the Supervisory Committee at least one week in advance of the scheduled examination.

A student can either pass or fail the oral exam, subject to a vote by the Supervisory Committee. If the student fails, a second attempt of the oral examination cannot be retaken in less than two weeks nor more than twelve months after the failed examination unless an extension is granted by the Dean of the Graduate School. No third trial is allowed.

D. Normal Progress Defined

Each semester of enrollment, a student must make normal progress towards the degree. "Normal progress" is considered to be the following:

- a grade point average that is 3.00 or more.

- a Major Professor selected and a Program of Study filed with the Graduate School by the end of the second semester in attendance.

- a class load of at least 9 credit hours per semester

- completion of the five core courses (CMPSC 671, 740, 700, 720, 761) by the end of the second semester in attendance.

GUIDELINES

FOR THE

DOCTOR OF PHILOSOPHY DEGREE

IN THE

DEPARTMENT OF COMPUTING AND

INFORMATION SCIENCES

KANSAS STATE UNIVERSITY

January 1987

GRADUATE STUDIES COMMITTEE

Dr. David A. Gustafson - Chairperson
Dr. William J. Hankley
Dr. David A. Schmidt
Joseph K. Campbell - Administrative Assistant

I. INTRODUCTION

These guidelines set forth departmental and university standards for attainment of a Doctor of Philosophy (PhD) Degree in Computer Science. You are expected to adhere to these standards. If exceptions are warranted, your advisor must be consulted to determine legitimate, alternate means of meeting the standards. Additional information is published every semester in the "Student Guide for Masters and Doctoral Degrees," which is available from the Graduate School Office and in the "Graduate Student Handbook," published by the Graduate Student Council.

The guidelines stated herein are those of the faculty of the Computer Science Department at KSU. Certain other regulations are imposed by the KSU Graduate School and are described in the "Graduate Faculty Handbook." It is the your responsibility to know and satisfy all relevant requirements. It is the responsibility of the Graduate Studies Committee of the Department of Computer Science at KSU to oversee the application of these guidelines.

The Graduate Studies Committee promises to keep you informed of the committee's view of your progress towards the graduate degree. In keeping with this commitment, an annual review of all graduate students is performed each January, and an evaluation of each student's progress is written. This evaluation is transmitted to the student and a copy is placed in his permanent and open record.

The primary overseer and guide for your PhD program is your adviser — first a temporary *academic adviser* and then your *research adviser*, who is identified as the Major Professor on your supervisory committee. Upon beginning your PhD studies, you are assigned an academic advisor. Approximately one year into your studies, you should locate a professor who agrees to be your research advisor. (These stages are discussed in detail in Section III.)

The PhD program in Computer Science is offered jointly by Kansas State University in Manhattan and the University of Kansas in Lawrence. Acceptance into the program implies acceptance by both Computer Science Departments. You may elect to fulfill residency and other requirements at either school. You may select courses from offerings at both schools. Your degree is awarded by the school that employs your research adviser.

II. GENERAL REQUIREMENTS

The PhD normally requires at least three years of full-time graduate study beyond the bachelor's degree, credited as at least 90 semester hours (typically distributed as 30 hours of Master's work, 30 hours of PhD level coursework and 30 hours of PhD research, culminating in a PhD dissertation). All work must be completed within seven years. At least one full year must be spent in residence. A student usually starts in the Master's program and receives a Master's degree. A student is then admitted into the PhD program as a *PhD student*. Upon successful completion of the comprehensive examination, the PhD student becomes a *PhD aspirant*. Each aspirant must complete preliminary examinations and submit a research proposal to become a *PhD candidate*. A candidate must submit and defend a dissertation to complete the degree.

Formal writing is considered an integral part of your PhD program. If it becomes evident

that you need to improve your writing skills, you will be required to complete English 516, Written Communication for Scientists, with associated English 030, Writing Laboratory, in addition to other requirements.

You are expected to participate in the professional activities of the Department. Thus, you should attend seminars and colloquia offered by the Department and by the professional societies within the Departments. Sometime in your graduate career you must participate in teaching within the Department. We will welcome your suggestions for improvements in the curriculum, research, and functioning of the Department.

You must maintain a 3.00 overall grade point average in all coursework and continue to evidence regular progress toward completion of the degree. Progress of graduate students is reviewed regularly by the Graduate Studies Committee. Any student who does not sustain adequate progress will receive written warning from the Computer Science Department. Any student who does not maintain an adequate grade point average or who does not respond to a warning of inadequate progress will be placed on probation, with written notice from the Graduate School. A student on probation must correct deficiencies within the time limit indicated in the written notice or be dismissed from the graduate program.

III. SPECIFIC REQUIREMENTS FOR THE PhD DEGREE

In the usual case, you must first complete a Master's degree in Computer Science or a related field. Then, you must apply for admission as a PhD student in the computer science department, and you must be accepted. (See the booklets "Directions for Applying for Graduate Study in Computer Science" and "Guidelines for the Master of Science Degree in Computer Science at Kansas State University.") Your Master's degree must include work equivalent to the following *core courses*:

- CMPSC671 Programming Science (includes symbolic logic, program specification, and verification)

- CMPSC700 Compiler Design (includes grammars and automata)

- CMPSC720 Operating Systems (includes concurrent programming and queuing models)

- CMPSC740 Software Engineering (includes lifecycle models and tools)

- CMPSC761 Data Base Systems (includes formal relations and graph models)

The core courses prepare you for taking the *comprehensive examination*, which covers the breadth of the core courses. (In special cases, a copy of a Master's examination and results taken at another university may be submitted as a substitute. The Graduate Studies Committee must approve the substitution.)

You are required to take the comprehensive exam by the end of your first semester in the PhD program. (You are encouraged to take the exam even earlier, at the end of your MS studies, if at all possible). Extensions of the time limit may be made for students entering the program from other universities if they have not had similar core courses. The request for an extension must be made before the end of the first semester.

If you fail the comprehensive exam, you must retake it and pass it the following semester. A third try is not allowed.

When you pass the comprehensive exam, you become a PhD aspirant. Obtain a *Declaration of Intent* form from the Graduate Studies secretary in the Computer Science Department and complete it. Once you return the form, you are officially admitted to the joint PhD program.

At the beginning of your second year of PhD studies, you must find a research adviser. Your research advisor must be a member of the Graduate Faculty. (See the KSU General Catalog for further information.) Since the research advisor organizes and directs your research, you should choose an advisor carefully. How do you find an advisor? Shop around. Talk to faculty members. Take some of the 800-level or 900-level research-oriented courses. Read current survey and research papers in computer science journals and magazines, and look at previous dissertations. *It is your responsibility to obtain a research advisor*. No faculty member is obligated to accept you as an advisee; the selection process requires mutual consent. If you have not obtained a research advisor by the end of the second year of your PhD studies, you will receive written warning from the Computer Science Department and will be placed on probation.

Once you have obtained a research advisor, work with your advisor to plan a *Program of Study*. (Obtain the Program of Study forms from the Graduate School.) The Program of Study contains the following information:

-major professor (that is, the research advisor)
-members of the supervisory committee (see the paragraph below)
-general area of research
-the three preliminary examination areas (see the paragraph below)
-all graduate course credits (at least 90 hours)

The graduate course credits must include the following:

-the KSU MS core courses (unless equivalent courses were taken at another institution. The Graduate Studies Committee reserves the right to determine equivalence.)
-at least three 900-level courses
-at least 30 hours of PhD research
-at least 24 hours of course credit at KSU beyond the Master's degree.

At the same time that you and your research advisor formulate your Program of Study, you also select a *Supervisory Committee*. Your supervisory committee must include at least four members of the Graduate Faculty. One member must be from the graduate faculty of the Computer Science Department at the University of Kansas. One member must be a Graduate Faculty member from a department other than Computer Science. This member should be chosen for his appropriateness to your research topic.

You and your advisor must also plan your preliminary exams. The exams must be taken at the end of your second year of PhD studies. You must submit a written request to take the exams one full semester in advance. You must also apply to the Graduate School for permission to schedule the exams. You may not take the exams until the Graduate School issues the ballot form.

The preliminary examinations are offered as a set of three written examinations and may include an additional oral examination. The examinations are taken in areas supportive of your research area. Preparation for each exam must consist of at least a 700-level— 800-level course sequence. At most one of these areas may be supported by readings and topics courses.

Each of the three exams is prepared by an examination committee. You will be informed of the members of the examination committees for your exams. Because of the dynamic nature of the computer science field and the variation in the content of advanced level courses, the scope of your examinations may not match exactly the scope of your preparatory courses. For this reason, after you schedule your examinations you must meet with your examination committees and obtain reading lists that identify the scope of each of the examinations.

The three preliminary examinations must be taken within a two week (that is, fifteen day) period. The format of the examinations vary. They may be closed-book (typically two to four hours in length) or open-book (one or two days' work).

The exams are graded by the respective examination committees. An exam may be graded as pass, fail, or conditional pass subject to remedial work. *You must not fail any exam.* If only one exam is marked fail, you must retake that exam the subsequent semester and pass it; if you fail it, you fail the preliminary exams and must leave the program. If you fail two or more exams, you must retake and pass all three exams the subsequent semester. Otherwise, you must leave the program.

The results of the preliminary exams are reviewed and approved by the Department's Faculty. You are notified in writing of the results.

After you have passed the preliminary exams, work with your adviser to prepare a written *research proposal* of your PhD thesis research. You must present it successfully to your supervisory committee in an open seminar. Your proposal defines your research topic and explains the significance and contribution of your work. It also serves as a contract for the direction and scope of your work. Upon the approval of your proposal, you are admitted as a PhD candidate. At this point the Graduate School designates an additional person outside of the Computer Science Department, who will serve as the Chairman for your final oral examination.

You must work closely with your advisor on your research. Each year, you must present a research colloquium that documents your progress. You are required to be a candidate for a period of at least seven months. Upon completion of your research work, you must write a *dissertation*. Each member of the supervisory committee must receive a copy of the dissertation and sign the Dissertation Approval Form, which you obtain from the Graduate School. (A member's signature does not indicate approval of the content, but merely receipt of a draft.) The committee members must be allowed at least two weeks to read your dissertation. (Don't forget to give a copy to the Chairman of your Final Examination Committee.)

You must schedule your oral presentation with the Graduate School. You cannot proceed with the presentation until the Graduate School issues the ballot form. Your presentation must be in an open seminar, but during the actual defense only the Final Examination Committee will be present. The committee will vote to pass or fail. If you pass the exam,

you submit the required dissertation copies, fees, and address information to the Graduate School. See the Graduate School for details.

A maximum of seven years is allowed from when you begin PhD course work until when you pass the oral examination.

Any issues not covered in this document will be resolved by the Graduate Studies Committtee and the Computer Science Faculty.

FACULTY RESUMES

PAUL S. FISHER

Professor
Department of Computer Science
Kansas State University
Manhattan, Kansas 66506
Office Tel. (913) 532-6350

Education:

1963	BA	Mathematics	University of Utah
1964	MA	Mathematics	University of Utah
1969	PhD	Computer Science	Arizona State University

Teaching and Interests:

Languages and Language Implementation
Data Base Management System
Computer Architecture
Distributed Processing
Networking
Distributed Data Base Management Systems
Special Purpose--Functional Architecture
Automatic Generation of Data Base Systems and Application Software

Grants:

1. NSF Regional Conference 1970
2. Applicability of the Extensible Programming System (EPS) to General Software Problems 1975
3. Research into and Development of a Low Cost Hardware Monitor 1974-1975
4. Hardware Error Detection and Fault Isolation by Software 1974-1975
5. Reliable Software Workshop 1974-1975
6. Back-end Mini-Computers: Usability and Feasibility 1974-1975
7. Portability Issues for Mini-Computers using IDMS, A Data Base Management System 1975
8. Heterogeneous Mini-Computer Network with Distributed Data Base Resources 1976-1977
9. Software Portability Issues 1976-1977
10. Investigation of Mini Networks 1978
11. Communication Techniques 1976
12. A Back-end DBMS Communication System 1976-1977
13. Data, Its Internal and External Form 1976-1977
14. A Network Processing System 1978
15. Automatic Generation of Data Base System 1980
16. Full Screen Editor: An Experiment in Machine Independent Software 1981

Publications (papers and reports):

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

McDonough, V., P. 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, January 6-7, 1972.

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

Ahmed, N., P. 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, P. S., E. E. Kohlbecker, "A Generalized Fibonacci Sequence," Fibonacci Quarterly, Vol. 10, 1972, pp. 337-344.

Skidmore, E. L., P. 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, P. S., W. J. Hankley, V. E. Wallentine, "Separation of Introductory Programming and Language Instruction," 4th ACM-SIGCSE Annual Conference, February 1973.

Cassing, D., P. S. Fisher, R. Janes, "A Software Virtual Memory System for a Mini-Computer," Second Annual Computer Conference, Austin, Texas, November 1973.

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

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

Maryanski, F. J., P. S. Fisher, "A Mini Computer Distributed Data Base Management System," NBS-IEEE Trends and Applications Symposium: Micro and Mini Systems, May 1976, pp. 113-117.

Maryanski, F. J., P. S. Fisher, and V. E. Wallentine, "Evaluation of Conversion to a Back-End DBMS, ACM National Conference, October 1976, pp. 293-297.

Maryanski, F. J., P. S. Fisher, "Rollback and Recovery in Distributed Data Base Management Systems," Proc. ACM Annual Conference, October 1977.

Maryanski, F. J., P. S. Fisher, V. E. Wallentine, M. A. Calhoun, "Distributed Data Base Management Using Mini Computers," INFOTECH State of the Art Report Minis Versus Main Frames, 1978.

Slonim, J., P. S. Fisher, "Survey of Mini Data Base Management System in 1977," Proceedings First Symposium on Small Systems, ACM, New York, August 1978.

Slonim, J., E. A. Unger, P. S. Fisher, "Data Base Management System Environments Present and Future," ACM SIGSMALL 79 Second Annual Symposium on Small Systems, October 1979, Dallas, TX.

Maryanski, F. J., P. S. Fisher, R. Housh, D. Schmidt, "A Prototype Distributed DBMS," Proceedings of 12th Hawaii International Conference in Systems Sciences, January 1979.

Fisher, P. S., J. Slonim, D. A. Schmidt, "Consideration for Determining the Degree of Centralization or De-centralization in the Computing Environment," Information and Management, Vol. 2, No. 1, February 1979.

Maryanski, F. J., P. S. Fisher, V. E. Wallentine, "Data Access in Distributed Data Base Management Systems," Information and Management, Vol. 2, No. 6, December 1979.

Su, S. Y. W., H. Chang, G. Copeland, P. S. Fisher, E. Lowenthal, S. Shuster, "Data Base Machines and Some Issues on DBMS Standards," Proceedings NCC, Vol. 49, May 1980, also published in Tutorial: Data Base Management in the 80's, J. A. Larson, H. A. Freeman, IEEE Publishers, 1981.

Fisher, P. S., J. Slonim, "Software Engineering: An Example of Misuse," Software Practice and Experience. Vol. II, No. 6, June 1981.

Fisher, P. S., P. Hollist, J. Slonim, "A Design Methodology for Distributed Data Bases," Proceedings IEEE COMPCON 80, Washington D.C., September 1980.

Slonim, J., D. Copeland, L. MacRae, P. S. Fisher, "Information in Medicine: Past, Present and Future," Proceedings Fourteenth Annual Hawaii Conference on Systems Sciences, January 1981.

Fisher, P. S., J. Slonim, "Enterprise Structure as Influenced by Hardware Topology," Proceedings MIMI'AD1, Mexico, May 1981.

Jacob Slonim, F. J. Maryanski, P. S. Fisher, and L. J. Macrae, "Sequential vs. Concurrent Processing: A Throughput Model," Information Systems, Vol. 6, No. 4, December 1981.

Case, J., P. S. Fisher, "Factoring F.I. Sequences," submitted for publication.

Fisher, P. S., I. Marschik, "Biometrics: A Support Tool to Measure Human Factors in System Development and Operations," Proceedings Second Symposium on Microcomputer and Microprocessor Applications, Budapest, Hungary, Oct. 6, 1981.

Butler, E., P. S. Fisher, "Computers and Data: The Hospital Information System," Proceedings Fifteenth Annual Hawaii Conference on Systems Sciences, January 1982.

Fisher, P. S., "A Data Base Design Technique For Centralized or Distributed Topologies", Computer Communications to appear in 1982.

Han, M. J., P. S. Fisher, "The Problem of Data Structure on a Heterogeneous Environment", Advances in Distributed Data Base Systems Management, Vol. II., Heyden Publishing Co., 1981.

Unger, E., P. Fisher, J. Slonim, "Evolving to Distributed Database Environments," Computer Communications, Vol. 5, No. 1, February 1982.

Slonim, J., R. A. McBride, P. S. Fisher, E. A. Unger, "A Quantitative Analysis of Information Processing in Centralized and Distributed Architectures", Advances in Distributed Processing, Vol. II, Heyden Publishing Co., 1984.

J. Case, and P. Fisher, "Long Term Memory Modules", Journal of Mathematical Biology, 1984.

Unger, E. A., J. JSolonim, P. Fisher and R. A. McBride, "Quantitative Analysis of Information Processing in Centralized and Distributed Architechture," in Advances in Distributed Processing Management, Vol. 2, John Wiley and Sons, 1984.

Books:

Unger, E. A., J. Slonim and P. S. Fisher Editors, Advances in Database Management, Vol. 2, Heyden Publishing Company, 1983.

Slonim, J., P. S. Fisher, E. A. Unger Editors, Advances in Data Communication Management, Vol. 2, Heyden Publishing Company, 1983.

Fisher, P. S., E. A. Unger and J. Slonim Editors, Advances in Distributed Systems Management, Vol. 2, Heyden Publishing Company, 1983.

Research Interests:

There are two problems in which I am presently interested. The problems deal with movement and utilization of information and the understanding of that information. In the first case, I am working with information in the distributed environments. The objective is to develop a procedure which permits the movement of systems in a family of possible environments. For example, a data base consists of data of three essential forms: modifiable, non-modifiable, and derivable. Clearly, every data base must contain all modifiable and non-modifiable data. However, the inclusion of derivable data is optional. This type of data then comprises a range or family of equivalent data bases, and I am developing a framework for moving the data base and the corresponding applications over this range in an automatic fashion.

The second problem is, as indicated, dealing with understanding information. For example, a typewriter which types from verbal input is a case in point. This area borders upon AI, mathematics and information processing. We are well along into this area using a mathematical framework for describing such problems. It is called a pre-algebra for finitely inductive sequences. This class of sequences can be used to describe all regular phenomena. The typewriter is such a phenomenon.

Both of these areas are couched in larger areas of interest, especially the data base problem. Hence, I am interested in problems in several distributed processing and data bases, especially those with irregular internal structures, such as text data bases, networks, communication and associated languages for such systems.

RESUME

William J. Hankley

Address

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Manhattan, Kansas 66502
(913-539-1028)

Position

Professor
Department of Computer Science
Kansas State University
Manhattan, Kansas 66506
(913-532-6350)

Areas of Interest/ Expertise

Software engineering (specifications, design, very-high-level programming):
Languages & compilers (ADA, Prolog, Modula2);
Graphics and interactive environments.

Date of Birth
Soc. Sec. No.
Married
Children

May 31, 1942, Chicago, Illinois
392-34-9207
Wally Lense
Elizabeth (19), Cynthia (16), Kristin (12)

Education

1962	BS	Elec. Engineering, Northwestern Univ.
1964	MS	EE (Information Science), Northwestern Univ.
1967	PhD	EE (Computer Science), Ohio State Univ.
1967-present		many years of computer science teaching

Teaching/ Research

1981-Present	Current Position
1980-1981	Computer Scientist Programming Sciences Division National Bureau of Standards
1971-1980	Associate Professor Kansas State University
1967-1972	Assistant Professor of Computer Science and EE, University of Utah

Consulting

Physiology Dept., Univ. of Utah (1968; pattern recognition)
Intermountain Regional Medical Program, Univ. of Utah (1969: systems analysis)
Kennecott Copper Corp. (1970; process control simulation)
Computer Sciences Corp. (1977; fingerprint recognition)
General Electric Corporation (1978; programming languages)
NCR Corporation (1977; network simulation)
Computer & Information Sciences Corp. (1978-1985)
US Army Topographic Command. (1979; recognition of river patterns)
Computer Science Corp. (1981; seminars on concurrent systems design)
Astronautics Corp. (1984; secure message system design)
Programs for Learning. (Co-owner, 1983-1985)

Projects	Image Analysis and Recoginition (ONR, 1966-67) Digital Filtering of Minuteman Missile Tracking Data (Hill AFB, 1967-68) Reliable Software (US Army, 1975) Macroporcessors (US Army, 1975-76) Computer Network Software (US Army, 1977-78) Network Simulation (NCR, 1978) Intermediate Representation of Programs (NBS, 1981)
Software	Color graphics packages for KSU teaching labs (FORTRAN 1972-74, Pascal 1978-80 Graphics Kernel System subset (Pascal 1983) Packet switching software for KSU network (CPascal; Interdata/IBM 370 network, 1977) Simulation package and network simulation tool (CPascal 1978) Worked with group supporting CPASCAL language and operating system, lectured on compiler internals (1977-79) Sign management and billing system (1984, dBaseII) Program generator tools (1984-1986, Pascal & Prolog)
Courses	Personal Computer Systems/Software Programming science (specification & verification) Programming languages Compiler design I,II Software engineering I,II Computer graphics Personal Computer Systems/Software Operating systems Semantics of languages Real-time software
KSU students	32 MS students, 2 PhD students
Societies	Association for Computing Machinery (SIGPLAN, SIGSCE, SIGGRAPH, student chapter adviser 1973-76) IEEE Computer Society Upsilon Pi Epsilon (Chapter Adviser 1977-80)
Reference	Dr. Paul Fisher, President, Computer & Information Sciences, Manhattan, KS (913-537-0613) Dr. Virgil Wallentine, Head, Dept. of Computer Science, Nichols Hall, Kansas State University, Manhattan, KS 66506 (913-532-6350)

Publications

W. Hankley, J. Tou, "Note on Control of Multiple Input Discrete Systems", IEEE Transactions on Automatic Control, Vol. AC-12,4, August 1967, pp. 469-470.

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

W. Hankley, "Fingerprint Classification for Automated Processing", Proceedings, Carnahan Conference on Electronic Crime Countermeasures, Univ. Kentucky, 1968, pp. 70-82. Also presented at 1968 WESCON.

W. Hankley, H. Merrill, "A Pattern Recoginition Technique for System Error Analysis", IEEE Transactions on Reliability, Special Issue Vol. R20, 3, August 1971, pp. 148-153.

P. Abergglen, W. Faris, W. Hankley, "Design of a Real-Time Central Data Acquisition and Analysis System", Proceedings of the IEEE, Special Issue, Vol. 58, 1, January 1970, pp. 38-48. Reprinted in J. Schoeffler, R. Temple (Eds), Minicomputers: Hardware, Software, and Applications, IEEE Press, New York, 1972.

W. Hankley, N. Miller, "Characterization of Pulse Waveforms for Classification", (Abstract) IEEE Symposium on Feature Extraction and Selection, New York, 1971.

F. Templeton, W. Hankley, "Dynamic Control of a Process with Discrete and Continuous Decision Variables", in Techniques for Decision Making in the Mineral Industry, Canadian Institute of Mining and Metallurgy, Montreal, Quebec, 1971.

T. Carey, W. Hankley, "Empirical Modeling of Occurrences of Severe Weather Events", Proceedings, Conference on Environmental Engineering, Society of Engineering Science, Washington, D.C., 1971, pp. 83-108.

P. Fisher, W. Hankley, V. Wallentine, "Separation of Introductory Programming and Language Instruction", ACM SIGSCE Bulletin, Vol. 5, 1, February 1973.

W. Hankley, V. Wallentine, "Programming Language Design for a Spectrum of Users", Proceedings 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", Proceedings Third Texas Conference on Computing Systems, November, 1974.

W. Hankley, V. Wallentine, "Color Graphics for Remote Teaching", Proceeding 1980 SIGGRAPH Conference SIGGRAPH, Vol. 14, 3, 1980.

W. Hankley, V. Wallentine, "Discrete Simulation with a Concurrent Language Base", Proceedings 1981 Summer Computer Simulation Conference, July 1981, pp. 12.

V. Wallentine, W. Hankley, "Modeling and Simulation of the Performance of Distributed Data Management Systems", in P. Fisher, E. Unger (Editors), Advances in Distributed Process Management, Haydon and Sons, 1983, pp. 39.

W. J. Hankley, W. L. Hankley, "Teach PDL, Not Flowcharts", submitted to Computing Teacher SIGCS Newsletter, Feb 1986.

W. Hankley, "Feature Analysis of Turbo Prolog", submitted to ACM SIG PLAN Notices, October 1986.

Technical Reports (* denotes funded project) Repose available from KSU except as noted.

*W. Hankley, "Source-Environment Models for SO2 Concentration", Kennecott Copper

Corp., Salt Lake City, Utah, 1971.

G. Anderson, W. Hankley, Users Guide, Computer Science Graphics Package, 100 pp., 1974. (Used as class reference.)

*CS 75-01, P. Fisher, W. Hankley, J. McCall, Steps Toward Reliable Software: Proceedings of a Workshop, 90 pp., January 1975.

*CS 75-02, J. Carrow, P. Fisher, W. Hankley, J. McCall, Toward Reliable Software: A Workshop on Structured Programming, Proceedings of a Workshop, 147 pp., February 1975.

*CS 75-03, I. Sagie, A. Gonen, W. Hankley, EPS II — An Extension of ML/I: Users Primer and Guide to Applications, 115 pp., July 1975.

CS 76-18, W. Hankley, J. Rawlinson, Sequential PASCAL Supplement for FORTRAN Programmers: A Primer of Slides, 161 pp., December 1976.

*W. Hankley, Design of the MIMICS Message System, 98 pp., 1977.

*CS 77-01, V. Wallentine, W. Hankley, G. Anderson, M. Calhoun, F. Maryanski, Progress Report on Functionally Distributed Computer Systems Development: Software and Systems Structure, 142 pp., December 1976.

CS 77-12, P. Fisher, W. Hankley, F. Maryanski, Porting Software to Multiple Minis: A DBMS Case Study, 23, pp., December 1976.

D. Snyder, W. Hankley, Conversion of the Computer Science Graphics Package to PASCAL, 75 pp., 1977. (Used as class reference.)

*CS 79-05, V. Wallentine, W. Hankley, R. McBride, SIMMON -- A Concurrent Pascal Based Simulation System, 52 pp., 1979.

*CS 79-02, W. Hankley, V. Wallentine, A. Skidmore, NEISIM — Network Simulation System, 50 pp., 1979.

CS 83-02, W. Hankley, Language Structure for Reusable Software, 37 pp., 1983.

D. Bodle, "A Graphic Tool for Generating ADA Language Specifications", MS Thesis, 90 pp, 1985.

M. Peak, "A Prolob Prototype of a Module Development System", MS Thesis, 125 pp, 1985.

RESUME
January 1986

NAME:
Elizabeth A. Unger

ADDRESS:

3009 Wayne Drive
Manhattan, Kansas 66502

POSITION:

Professor
Department of Computer Science
Kansas State University
Manhattan, Kansas 66506

TELEPHONE:
Office (913) 532-6350
Home (913) 539-6594

EDUCATION:

1961	B.S.	Mechanical Engineering	Michigan State University
1963	M.S.	Mathematics	Michigan State University
1978	Ph.D.	Computer Science	University of Kansas

PROFESSIONAL EXPERIENCE:

Employment:

1982	Prof., KSU Computer Science Dept.
1978 - 1982	Assoc. Prof., KSU Computer Science Dept.
1969 - 1978	Asst. Prof., KSU Mathematics, Statistics, & Computer Science Dept.
1970 - 1974	Assoc. Director, KSU Computing Center
1969 - 1970	Acting Director, KSU Computing Center
1969	Assoc. Director, KSU Computing Center
1967 - 1969	Asst. Director, KSU Computing Center
1966 - 1967	Chief Programmer, KSU Computing Center
1963 - 1966	User Services Supervisor and Librarian Michigan State University
1961 - 1963	Graduate Asst, Michigan State Univ.
1958 - 1962	Applied Science Student Trainee, IBM, Lansing, Michigan
1957 - 1959	Laboratory Asst, Michigan State Univ.

Reviewer:

ACM (Computing Reviews)
ACM (Small and Personal Computers)
ACM (Computer Science and Education)
Benjamin Cummings Publishing Co.
Charles Merrill Publishing Co.
Addison Wesley Publishing Co.
Prindle, Weber, Schmidt Publishers
McGraw Hill Publishing Co.

KSU Service:

1986	Chairman, Undergraduate Student Department of Computer Science
1984	SIGMA XI Departmental Representation Committee Member
1983	SIGMA XI Board
1983	Seminar Committee Chairman of Department of Computer Science
1983 - 1986	Department Seminar Chair
1983 -1986	Arts & Sciences Dean Advisory Committee
1982	Search Committee, Head of Electrical Engineering
1982 - 1983	A & S Dean Evaluation Committee
1982 - 1984	Chairman Graduate Studies Committee for Department of Computer Science
1982 - 1986	Graduate Studies Committee
1979 - 1982	Graduate Council
1979 - 1982	Physical Sciences Subcommittee
1979 - 1982	Course and Curriculum Committee Chairman for the Department of Computer Science
1979	Salary Model Committee
1979 - 1981	Graduate Faculty, Physical Sciences Subcommittee
1979 - 1982	Big-8 Womens Advisory Committee
1978 - 1982	Guest Scholar Committee
1978 - 1982	AIAW University Representative
1977 - 1980	Art and Science Honors Program, Advisor Committee
1978 - 1982	Intercollegiate Athletic Committee
1974	Search Committee, Women's Athletic Director
1973 - 1974	Academic Affairs Committee
1973 - 1974	Faculty Senate
1969 - 1970	University Digital Computer Committee

Public Service:

1969 - 1973	Alumni Board of Directors, College of Engineering, Michigan State University
1967 - 1974	Committee for High Education in Computing in Kansas

Awards:

1970	Distinguished Alumni Award, Michigan State University
1978	Dissertation Honors, Kansas State University, Ph.D.
1961	Outstanding Mechanical Engineering, Senior
1958	Outstanding Engineering Sophomore-Phi Kappa Phi

HONORARY PROFESSIONAL SOCIETIES:

American Society of Mechanical Engineers
Association for Computing Machinery
Tau Beta Pi
Phi Kappa Phi
Pi Tau Sigma
Pi Mu Epsilon
Mortar Board
Sigma Xi

PROFESSIONAL SERVICE:

ACM SIGSMALL Program Chair, 1986 National Conference
ACM SIGSMALL North American Program Chair, 1988 National Conference
CSAB Review Team Member 1986
ACM SIGSMALL Speakers Chair, 1985 National Conference
Co-Coordinator for Conference on Mathematical Foundations of Programming Semantics, Manhattan, CS, 1985
State of Louisiana, Board of Regents Review Panel for Computer Science Education 1985, 1985
ACM Computer Science Conference, Session Chair, 1981
Kansas Mathematics Association, Computers in Mathematics Panel, 1981
ACM National Computer Science Conference, Exhibit Chair, 1980

RESEARCH FIELDS:

Concurrency
Database
Distributed Systems
Office Automation

PERSONAL DATA:

Date of Birth - May 23, 1939
Marital Status - Married
Family - 1 son, 2 daughters
Citizenship - USA

PUBLICATIONS:

Cipra, L. E., E. A. Unger and O. W. Bidwell, "A Computer Program to

Danskin, D. G., E. A. Unger and C. E. Kennedy, "Adapting the Computer for Narrative Material: A Progess Report," Journal of Counseling Psychology, 17, pp. 63-66, 1970.

Unger, E. A., T. J. Swanson and M. H. Miller, "Planning for the Expansion of Computing Capabilities," 3rd Texas Conference on Computer Systems, Austin, Texas, 1974.

Unger, E. A. and N. Ahmed, "An Instructionally Acceptable Cost Effective Approach to a General Introductory Computer Science Course," Bulletin of the ACM Special Interest Group in Computer Science Education, May 1976.

Sego, J. and E. A. Unger, "The Computer to Your Rescue," Journal of Home Economics, September 1977.

Schweppe, E. J. and E. A. Unger, "A CONCURRENT MODEL: Fundamental," Proceedings 1st European Conference on Parallel and Distributed Systems, February 1979.

Slonim, J., E. A. Unger and P. S. Fisher, "Data Base Management System Environment Present and Future," ACM Sigsmall, 1979.

Unger, E. A., R. A. McBride, J. Slonim and F. J. Maryanski, "Design for the Integration of a DBMS into a Network Environment," in Proceedings of Sixth Data Communications Symposium, IEEE, 1979.

Maryanski, F. J. and E. A. Unger, "A Major in Information Systems," Special Issue on Computer Systems Education, IEEE, 1979.

Unger, E. A., P. S. Fisher, R. A. McBride and J. Slonim, "Design for Integration of a DBMS into a Network Environment," Computer Society Tutorial on Distributed Processing, IEEE, March 1980.

Unger, E. A. and E. J. Schweppe, "A Concurrency Method: Definition," Proceedings of ACM Computer Science Conference, Feb. 1981.

Schweppe, E. J. and E. A. Unger, "A Concurrency Method: Examples," Proceedings of ACM Computer Science Conference, Feb. 1981.

Engler, Verlyn, E. A. Unger and Bryan Schurle, "The Potential for Microcomputer Use in Agriculture," Kansas Agricultural Experiment Station, Contribution member 81-412-A (also presented to the Agriculture Economics Annual Meeting, August 1981).

Unger, E. A., W. T. Cottrell and P. A. Viglucci, "Management Issues on a Geographically Distributed Network," in Advances in Distributed Processing, Vol. 2, Heyden Publishing Company, 1982.

Slonim, J., R. A. McBride, P. S. Fisher and E. A. Unger, "A Throughput Model," in Advances in Distributed Processing, Vol. 2, Heyden Pub. Co., 1983.

McBride, R. A., J. Slonim, L. J. MacRae, E. A. Unger, "Mediator: An Approach for Providing a Global User View in a Distributed Information Environment", in Advances in Distributed Processing Management, Vol. 2, Heyden Publishing Company, 1982.

Aikens, W. A. and E. A. Unger, "System Resiliency in a Mobile Network", in Advances in Distributed Processing Management, Vol. 2, Heyden Publishing Company, 1982.

Fox, Richard A. and E. A. Unger, "Selecting a Database Management System," in Chapter in Advances in Database Management, Vol. 2, Heyden Publishing Company, 1982.

Slonim, J., R. A. McBride, P. S. Fisher and E. A. Unger, "A Quantitative Analysis of Information Processing in Centralized and Distributed Architectures," in Advances in Distributed Processing, Vol. 2, Heyden Publishing Company, 1982.

Slonim, J., L. J. MacRae and E. A. Unger, "Distributed System Development: Risks and Rewards," Auerbach Series on Computer Systems, 1982.

Unger, E. A. and P. S. Fisher, "Evolving to a Distributed Data Base Environment, Computer Communications, Vol. 5, No. 1, 1982.

Barker, R. and E. A. Unger, "A Predictor for Success in an Introductory Programming Class Based upon Abstract Reasoning Development," ACM SIGCSE Bulletin, Feb. 1983, p154-158 (presented at annual meeting)

Mata, R. and E. A. Unger, "Another Look at Motivating Data Processing Professionals," ACM SIGUCCS, Vol. 13, No. 3, Fall 1983, p7-11.

McBride, R. A. and E. A. Unger, "Modeling Jobs in a Distributed System," Proceedings ACM Conference on Personal and Small Computers, Dec. 1983, p32-44. (presented by McBride at Dec. 1983 meetings)

Unger, E. A., D. Jantz, R. A. McBride and J. Slonim, "Query Processing in a Distributed Database," Proceedings ACM Conference on Personal and Small Computers, Dec. 1983, p237-245. (presented by Unger at Dec. 1983 meetings)

Unger, E. A., J. Slonim, P. Fisher and R. A. McBride, "Quantitative Analysis of Information Processing in Centralized and Distributed Architecture," in Advances in Distributed Processing Management, Vol. 2, John Wiley and Sons, 1984.

Unger, E. A., W. T. Cottrell and P. A. Viglucci, "Management Issues in a Geographically Distributed System," in Advances in Distributed Processing Management, Vol 2, John Wiley and Sons, 1984.

Unger, E. A. and W. P. Aikens, "System Resiliency in a Mobile Network," in Advances in Distributed Processing Management, Vol. 2, John Wiley and Sons, 1984.

Unger, E. A., J. Slonim, L. H. MacRae and R. A. McBride, "Mediator: An Approach for Providing a Global User View in a Distributed Information Environment," in Advances in Distributed Processing Management, Vol. 2, John Wiley and Sons, 1984.

Pashtan, A. and E. A. Unger, "Resource Monitors: A Design Methodology for Operating Systems," accepted by Software Practice and Experience, August 1984, p 791-806.

Honeyman, J. and E. Unger, "SFM: Synchronizing Forms Manager," ACM SIGSMALL Proceedings, 1986.

Huang, Y.W., E.A. Unger, L.T. Fan, "Impact of Programming Environment on Fuzzy Process Design and Synthesis; AICHE Proceedings, 1986.

Huang, Y.W., M.M. Gharpuray, L.T. Fan and E.A. Unger, "A Fuzzy Expert System for Separation Sequencing of Bioproducts", Proceedings of the Symposium on Bioprocessing Strategies: Control, Integration, and Artificial Intelligence, 1986.

PROFESSIONAL PRESENTATION:

Unger, E. A., "Intelligent Data Objects: A Useful Concept in Networks", MAECON Technical Seminar, Kansas City, 1985.

Sherman, G., Unger, E. A., "A Computer Vison Algorithm Based on Planar Sectors", MAECON Technical Seminar, Kansas City, 1985.

BOOKS:

Unger, E. A., N. Ahmed, Classroom Instruction Notes; Fundamentals of Computer Programming, Kendall/Hunt Publishing Company, 1976.

Unger, E. A., N. Ahmed, Computer Science Fundamentals: An Algorithmic Approach Via Structured Programming, Charles Merrill Publishing Company, 1979.

Unger, E. A., J. Slonim and P. S. Fisher Editors, Advances in Database Management, Vol. 2, Heyden Publishing Company, 1983.

Slonim, J., P. S. Fisher, E. A. Unger Editors, Advances in Data Communication Management, Vol. 2, Heyden Publishing Company, 1983.

Fisher, P. S., E. A. Unger and J. Slonim Editors, Advances in Distributed System Management, Vol. 2, Heyden Publishing Company, 1983.

TEACHING EXPERIENCE:

1. Courses Taught
   a) Data Base Management at B.S., M.S. and Ph.D. levels
   b) Programming Languages at B.S. and Ph.D. levels
   c) Computational Structures at Ph.D. level
   d) Data Structures at B.S. level
   e) Introductory Computer Science and Computer Literacy
   f) Distributed Systems at M.S. and Ph.D. levels
   g) Computing Service Center Mangagement at M.S. level
   h) Numerical Analysis at B.S. level
   i) Office Automation M.S. and PhD levels
2. Graduate Student Direction
   a) Ph.D. students
      5 completed
      6 active
   b) M.S. students
      80 completed
      18 active
   c) B.S. honors students
      2 completed
   d) Supervisory Committee Service (not including my students)
      M.S. - approximately 75
      Ph.D. - 15
3. Student Evaluations of Teaching Effectiveness - upper 15%, 1979 Undergraduate teaching award finalist, KSU

Synopsis of a Resume

NAME:
Virgil E. Wallentine

ADDRESS:
109 Notre Dame Circle
Manhattan, Kansas 66502

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

TELEPHONE:
Office (913) 532-6350

EDUCATION:

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

RESEARCH FIELDS:
Operating Systems
Concurrent Programming Systems
Computer Networks
Knowledge-based Software Engineering

PERSONAL DATA:

Date of Birth	-	April 16, 1943
Marital Status	-	Married to Dee
Family	-	2 children
Citizenship	-	U.S.

PROFESSIONAL EXPERIENCE:

Employment

1982 - present	Current Position
1980 - 1982	Professor Computer Science Department Kansas State University
1976 - 1980	Associate Professor Computer Science Department Kansas State University
1972 - 1976	Assistant Professor Computer Science Department Kansas State University

1971 - 1972	Instructor & Systems Analyst Dept. of Computer Science Iowa State University
1967 - 1971	Systems Analyst Ames Laboratory U.S. Atomic Energy Commission Ames, Iowa

Recent Professional Activities

1986	Reviewer for research proposals-Missouri Research Assistance Program
1978 - 1982	Reviewer for research proposals—Army Research Office
1979	Invited participant, Network IPC Workshop, Atlanta, Georgia
1980	Technical program chairman, 11th Annual ACM SIGCSE Conference, Kansas City, Kansas
1980	Session chairman, 11th Annual ACM SIGCSE Conference, Remote Teaching—Technology and Experience
1982 - 1984	Reviewer for IEEE INFOCOM
1980 - 1984	Reviewer for Data Communications Annual Symposiums

Consulting

1976	Cullinane Corporation—Host/Backend Message System
1977	National Cash Register—Distributed Processing Systems
1977	Air Force—A Hierarchical Computer Network for Real-time Data Collection
1978	National Semi-Conductor—Multiprocessor Computer Architecture
1978	NCR Corporation—Distributed Data Base Simulation Model
1979 - 1980	Advanced Software Systems, Perkin-Elmer Computer Systems Division--Operating System Structure
1981	Lawrence Livermore Laboratory—Code Optimization in Pascal Compilers
1981 - 1982	Battelle Laboratories—Network Operating Systems
1982 - 1983	Battelle Laboratories—Common Operating System Command Language
1984	Astronautics - Provably Secure Operating Systems.

Grants(Funded)

1976 - 1977	V. E. Wallentine, Principal Investigator. Functionally Distributed Computer Systems Software and System Structure ($190,000). Grantor: U.S. Army Research Office
1977	V. E. Wallentine, Principal Investigator. Optimizing (Sequential and Concurrent) PASCAL Compilers for a High-level Language (HLL) Machine ($15,700). Grantor: Advanced Development Division, Perkin-Elmer Data Systems
1977	V. E. Wallentine, Principal Investigator. A Systems Implementation Language for an HLL Architecture ($30,000). Grantor: Advanced Development Division, Perkin-Elmer Data Systems
1977	V. E. Wallentine and W. J. Hankley, Principal Investigators. Simulation of Network Performance for Distributed Data Base Configurations ($8,196). NCR Corporation
1978	V. E. Wallentine, Principal Investigator. A Network Based Operating System ($38,000). Grantor: Advanced Development Division Perkin-Elmer Data Systems
1978 - 1980	V. E. Wallentine, Principal Investigator. Distributed Operating Systems ($265,000). Grantor: Army Research Office
1979	V. E. Wallentine, Principal Investigator. NSF Travel Grant ($3,600)
1980 -	V. E. Wallentine, Principal Investigator. Performance of Message-Based Operating Systems ($8,300). Grantor: Perkin-Elmer Data Systems, Advanced Development Division.
1980 - 1981	V. E. Wallentine, Principal Investigator. Multi-level Symbolic Debugging in Separately Compiled Pascal Modules ($40,000). Perkin-Elmer Ltd., Slough, England.
1983	V. E. Wallentine, Principal Investigator. Western Electric Graduate Program ($166,000).
1984	V. E. Wallentine, Pricipal Investigator. AT&T Technologies Graduate Program ($192,000)
1985	V. E. Wallentine, Principal Investigator. AT&T Information Systems Graduate Program ($202,000)
1986	V. E. Wallentine, Principal Investigator. AT&T Information Systems Graduate Program ($202,00)

EQUIPMENT GRANTS:

1976	($190,000) Minicomputer equipment from Interdata
1977	($35,000) minicomputers, terminals, and communications interfaces from Perkin-Elmer Data Systems
1979	($50,000) minicomputer from NCR Corp. Wichita, Kansas
1980	($26,000) minicomputer memory from Perkin-Elmer Data Systems
1984	($46,000) Color Graphics System and remote access terminals from AT&T Information Systems
1985	($300,000) Minicomputer Systems from AT&T Information Systems
1986	($1,000,000) Mini- and Micro- Computer Systems from AT&T Information Systems

PUBLICATIONS:

Papers

A Pedagogical Operating System, (with J. H. Campbell and C. T. Wright), ACM SIGPLAN Symposium on Pedagogic Languages with Small Computers, January 1972.

Separation of Introductory Programming and Language Instruction, (with P. S. Fisher and W. J. Hankley), Proceedings of ACM SIGCSE Annual Conference, February 1973.

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

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

A Model for Extensible-Contractible Language Compilers, (with G. G. Anderson), Proceedings of the 1975 International Algol 68 Conference, Stillwater, Oklahoma, June 1975.

A Simulation Model of a Backend Data Base Management System, (with F. J. Maryanski), Proceedings 5th Annual Pittsburgh Modeling and Simulation Conference", Pittsburgh, Pennsylvania, March 1976.

Evaluation of Conversion to a Backend Data Base Management System, (with F. J. Maryanski and P. S. Fisher), Proceedings of 1976 National ACM Conference, Houston, Texas, October 1976.

A Mini-Computer Based Distributed Data Base System, (with F. J. Maryanski, P. S. Fisher, M. A. Calhoun, and L. Sernovitz), Proceedings NBS-IEEE Trends and Applications Conference--Mini-and Micro-computer Systems, Washington, D. C., June 1976.

Distributed Data Base Management Using Mini-computers, (with F. J. Maryanski, P. S. Fisher, and M. A. Calhoun), Infotech State-of-the-Art Report, "Mini's Versus Mainframes," February 1978.

Experiences with the Portability of Concurrent Pascal, (with D. Neal), Software Practice and Experience, Vol. 8, No. 3 (May-June) 1978.

A Distributed Data Processing System Architecture, (with P. Fisher), (invited paper), Proceedings of SHARE 50, March 6-10, 1978, Denver, Colorado.

Programming Issues in Distributed Systems. Proceedings of the Network IPC Workshop, Georgia Tech., Phil Enslowe, editor, December 1979.

Experience with Concurrent Pascal as an Implementation Language, Proceedings of Conference on Microprocessors in DoD, Colorado State Univ., August 1979.

Data Access in Distributed Data Base Management Systems, (with F. J. Maryanski and P. Fisher), Journal of Information and Management, Vol. 2, No. 6 (December) 1979.

Editor (with W. Bulgren), Proceedings of the Eleventh ACM SIGCSE Technical Symposium, February 1980.

Color Graphics for Remote Teaching, (with W. J. Hankley), Proceedings of the 1980 ACM SIGGRAPH Conference, July 1980.

Computer Network Security, (with J. Scharf and P. Fisher), in Advances in Computer Network Security, Heyden & Sons, Philadelphia, PA, 1980.

Discrete Simulation with a Concurrent Base Language, (with W. J. Hankley and R. A. McBride), Proceedings of 1981 Summer Simulation Conference, Reston, Va., July, 1981.

OFFICE/NET: The Backbone of the Automated Office (with J. Slonim, P. Fisher, L. McRae and R. McBride), in Electronic Office; Management and Technology , Auerbach Publishers, Inc., Pennsauken, N.J., April 1982.

Modeling and Simulation of the performance of Distributed Data Management Systems, (with W. J. Hankley), in Advances in Distributed Processing Management, Fisher, Slonim, and Unger, editors, John Wiley & Son, Inc., 1983

Technical Reports

An Abstract Machine to Control the Execution of Semi-Independent Concurrent Computations, (with C. T. Wright and R. F. Keller), (Iowa State University), U. S. Atomic Energy Commission Report IS-2920, August 1972.

A User-orientated Hardware Monitor, (with G. G. Anderson, F. R. Keller, and P. S. Fisher), KSU Department of Computer Science Technical Report, July 1975.

Usability and Feasibility of Backend Minicomputers, (with F. J. Maryanski and P. S. Fisher), KSU Department of Computer Science Technical Report, June 1975.

Implementation of a Backend Data Base Management System, (with F. J. Maryanski, P. S. Fisher, et al.), KSU Department of Computer Science, October 1975.

Concurrent PASCAL—A Tutorial, (with R. McBride), KSU Department of Computer Science, Technical Report No. CS76-17, December 1976.

The KSU Implementation of Concurrent PASCAL, (with D. Neal, G. Anderson, and J. Ratliff), KSU Department of Computer Science, Technical Report No. CS76-16, October 1976.

Progress Report on Functionally Distributed Computer Systems, (with M. A. Calhoun, P. S. Fisher, W. J. Hankley and F. J. Maryanski), July, 1976; and In-Progress Review of Functionally Distributed Computer Systems, December 1976, Technical Report No. CS77-04.

A User-Transparent Mechanism for the Distribution of a CODASYL Data Base Management System, (with F. J. Maryanski and P. S. Fisher), KSU Department of Computer Science, KSU Report No. CS76-22, December 1976.

SOLO Tutorials, (with D. Neal and B. North), KSU Department of Computer Science, Technical Report No. CS77-20, October 1977.

MIMICS (Asynchronous) Line Protocol, (with E. Rehme), KSU Department of Computer Science, Technical Report No. CS77-15, December 1977.

NETSIM: A Distributed Network (Data Base) Simulation Program, (with W. J. Hankley, A. Skidmore, and R. McBride), KSU Department of Computer Science, Technical Report, No. CS79-02, January 1979.

SIMMON—A Concurrent Pascal Based Simulation System, (with W. J. Hankley and R. McBride), KSU Department of Computer Science, Technical Report No. CS79-05, February 1979.

The NADEX Core Operating System Services, (with R. Young), KSU Dept. of Computer Science, Technical Report No. CS79-11, November 1979.

The Structure of the NADEX Operating System, (with R. Young), Technical Report No. CS79-12, November 1979.

Implementation of the Kernel of Concurrent Pascal/32, (with R. Young), Technical Report No. CS79-13, December 1979.

Command Processors for Dynamic Control of Software Configurations, (with R. Fundis), KSU Dept. of Computer Science, Technical Report No. CS80-02, August 1980.

A Software Structuring Tool for Message-Based Systems, (with K. Rochat), KSU Dept. of Computer Science, Technical Report No. CS80-04, August 1980.

NADEX Job Control System Implementation, (with K. Rochat), KSU Dept. of Computer Science, Technical Report No. CS80-05, July 1980.

NADEX Utility Programs, (with K. Rochat), KSU Dept. of Computer Science, Technical Report No. CS80-06, August 1980.

A Sampler of Software Configurations for NADEX (With R. Young and D. Eaton), AIRM-ICS Technical Report, Georgia Tech., Atlanta, Georgia, April 1982.

KSU/KU Communications Link. Legislative Committee on Computers, Communications, and Technology, Topeka, Kansas, July, 1984.

Presentations (outside KSU)

Structural and Performance Issues in a Backend Minicomputer System, (with P. S. Fisher and F. J. Maryanski), U. S. Army Computer Systems Command, May 1975.

Structure of the MIMICS Computer Network, Colloquium at Defense Communications Agency, Washington, D. C., May 1976.

Standardization of Data Link Control Procedures, Colloquium at Naval Operations (91), Pentagon, Washington, D. C., July 1976.

Concurrent PASCAL—An Implementation Language for Event-Driven Systems, Interchange Conference, Tinton Falls, New Jersey, October 1976.

The Design and Implementation of the MIMICS Network, Briefing at Computer Systems Command, Advanced Technology Directorate, Fort Belvoir, Virginia, January 1977.

Computer Network Support for Geographically Distributed Data Processing Functions, (with P. S. Fisher), Social Security Administration, Baltimore, Maryland, July 1977.

Alternative Machine Expansion, (invited talk), SHARE 50 Conference, March 7, 1978, Denver, Colorado.

Software Configurations—Inherently Distributable Software, Army Institute for Reseach in Management Information and Computer Sciences (AIRMICS), August 1978, Atlanta, Georgia.

A Portable Operating System, AIRMICS, Atlanta, Georgia, May 1979.

Distributed Operating Systems, Dept. of Computer Science, Oregon State University, May 1979.

NADEX—A High Level Language Operating System, Advanced Development Division, Perkin-Elmer Data Systems, Tinton Falls, New Jersey, May 1979.

COOP--A Computer-based Remote Teaching System, NCR Corp., Wichita, Kansas, July 1979.

Experiences with Concurrent Pascal as an Implementation Language, Workshop on Microprocessors in DoD, Colorado State University, Ft. Collins, Colorado, August 1979.

Mini-computer Networks, 1979 Conference for Higher Education Computing in Kansas, KSU, September 1979.

Implementation of Distributed Communicating Sequential Processes, AIRMICS, November 1979.

Design Considerations for a Multiprocessor, Distributed Virtual Memory System, (with R. Young), Perkin-Elmer Data Systems, March 1980.

NADEX—A Network Adaptable Executive, Perkin-Elmer Data Systems, March 1980.

NADEX—An Environment for Modular Distributed Programming, Iowa State University, October 1980.

Implementation of a Common Operating System Command Language, AIRMICS, July, 1983.

The Life Cycle of Evolving Software Systems, Armed Forces Communications and Electronics Association, Symp., Oct. 1983.

KSU/KU Communications Link. Legislative Committee on Computers, Communications, and Technology, Topeka, Kansas, July 1984.

MANAGEMENT EXPERIENCE:

1. Research Grants
   a. $100,000 per year for 6 years
   b. 5-10 people in research development staff and research faculty

2. Department Head (1978-1979, 1982-present)
   a. 15 faculty and staff members
   b. 50 research and teaching assistants
   c. $1.5 million annual budget
   d. Faculty evaluation—upper 10%

3. Director of Minicomputer Lab (16 years)
   a. $2.5 million equipment
   b. 3 support staff

4. Implementation Projects Completed
   a. Optimizing compilers for Sequential and Concurrent Pascal
   b. Network hardware and software
   c. A Module Control System
   d. HLL operating system
   e. Simulation system
   f. Word processing system
   g. Network Operating System—NADEX

5. Research support for 20 graduate students

TEACHING EXPERIENCE:

1. Courses Taught
   a. Operating systems at BS, MS, and Ph.D levels
   b. Data structures at BS level

c. Computer architecture at BS and MS levels
d. Programming languages at all levels
e. Compiler design at MS and Ph.D levels
f. Computer networks at MS and Ph.D levels
g. Computation structures at the Ph.D level
h. Office Automation at MS level

2. Graduate Student Direction
   a. Ph.D students
      3 completed
      4 active
   b. MS students
      50 completed
      10 active
   c. Supervisory Committee Service
      (not including my students)
      MS—approximately 120
      PhD—10

3. Student Evaluations of Teaching Effectiveness—upper 25%

COMMITTEE SERVICE:

1. University Committees

1973-1974, 1980-1984 University Digital Computer Committee
1976-1978 Arts and Sciences Honors Council
1978-1985 Computer Science Building Planning Committee
1980 Graduate College Grievance Committee
1980 Faculty Senate Committee on Recreational Services
1980-1983 Television in Education
1983-1986 University Academic Computer Advisory Committee
1983-1985 Task Force on High Technology
1985-1986 University Telecommunications Executive Committee
1985-1986 Computer Engineering Curriculum Committee

2. Computer Science Department Committees

1974-1986 Director—Minicomputer Laboratory
1972-1986 Curriculum Committee
1974-1975, 1979 KSU/KU Joint PhD Committee
1974-1976, 1979-1981 Chairman, Graduate Studies Committee
1978-1986 Off-campus Teaching
1972-1986 Ph.D Prelim. Committee
1975-1986 MS Qualifier Committee

REFERENCES:

Dr. Elizabeth Unger
Professor
Dept. of Computer Science
Kansas State University
Manhattan, Kansas 66506

Dr. Richard Sincovec
Professor and Head
Dept. of Computer Science
University of Colorado Colorado Springs
Colorado Springs, Colorado

Dr. Paul S. Fisher
Professor
Dept. of Computer Science
Kansas State University
Manhattan, Kansas 66506

Synopsis of a Resume

NAME:
Myron Ammon Calhoun

ADDRESS:
2001 Dunbar Road
Manhattan, Kansas 66502

POSITION:
Associate Professor
Computer Science Department
Kansas State University

TELEPHONE:
Office: (913) 532-6350
Home: (913) 539-4159

EDUCATION

1961	AA	Graceland College	Lamoni, IA
1963	BS	University of Kansas	Lawrence, KS
1964	MS	Colorado State University	Ft. Collins, CO
1967	PhD	Arizona State University	Tempe, AZ

INTERESTS:

Hardware design, development, and implementation of digital systems which may range in size from dedicated-application non-programmable digital controllers up through micro, mini, and large-scale general purpose programmable computers.

Programming of computer "system" software, especially assemblers, device drivers, local-area networks, and other software concerned with input/output problems.

Application of computers to needs of the physically handicapped, including design of special-purpose input/output devices and programming of "user-friendly" interactive software.

Smoothing of Hardware-Firmware-Software-Programming boundaries via machine-independent software, languages, and computer-aided design.

Teaching others how to do all of the above.

Major Employment Responsibilities:

1971 - Present — Computer Science Department
Kansas State University
Manhattan, KS
Dr. Virgil E. Wallentine, Department Chairman

Taught various classes in digital system hardware and logic design, computer programming, operating systems, data structures, and microcomputer systems. Served on M.S. and Ph.D. committees, directed M.S. projects. Chairman of or served on various academic committees. Conducted various research projects.

1984 - Summer

Computer Science Directorate
Armament Division
Eglin Air Force Base, Florida 32542
Dr. Robert N. Braswell, Director

As a Research Fellow in the U.S. Air Force Office of Scientific Research Summer Faculty Research Program (administered by the Southeastern Center for Electrical Engineering Education), designed and developed assembly language programs for the Zenith Z-100 desktop computer in support of non-classified Air Force projects.

1971 - 1975

Electrical Engineering Dept.
Kansas State University
Manhattan, Kansas 66506
Dr. Wellington Koepsel, Department Chairman

Taught various classes in digital system hardware and logic design and microcomputer systems. Served on M.S. and Ph.D. committees. Assisted in various research projects.

1973 - Summer

Brooks Research & Manufacturing, Inc.
Subsidiary of Dit-MCo International
Kansas City, MO 64130
Price D. Wickersham, Coordinator

Investigated the possibility and advisability of using the "new" microcomputer in their minicomputer - controlled automatic wiring analyzers. Wrote a cross assembler and a simulator, hand-translated some NOVA code into equivalent microcomputer code, and evaluated the simulated execution time for crucial control functions.

1967 - 1971

Digital Systems Research Department
Fairchild R. & D. Laboratory, F. C. & I., Inc.
Palo Alto, CA
Dr. William R. Smith, Supervisor
Rex Rice, Department Chairman

Helped to implement SYMBOL IIR, a radically innovative digital computer with multiprogramming, multi-processing, and a high-level language (Algol-like) all in hardware; shared in the specification of, and wrote the programs (including a special language interpreter and all I/O interface routines) for a test facility used to "debug" the new computer with an existing one; supervised the system software programming group; and led the specification team for the design of SYMBOL II, a second, more advanced version of the computer. Also specified the design of a high-speed, special-purpose, micro-programmable binary computer to function as a terminal-controller/data-concentrator in SYMBOL II.

Specified a complete family of general-purpose binary computers and performed preliminary cost analysis; designed and built the smallest member of the family (a 512-word, 9-bit peripheral controller); supervised its interfacing to a 9-track tape, a large flat bed plotter, a card reader, and a paper-tape reader and punch; wrote its software and all of its application programs.

Wrote an analysis and evaluation program to facilitate semi-automatic testing of the ILLIAC IV LSI memory chip; specified a systematic procedure to test and evaluate LSI wafers automatically using a minicomputer and a wafer probe station.

Assisted in writing programs for computer-aided design of digital systems, including placement and wire-routing algorithms.

1966 - Summer — E.G. & G. Inc.
Las Vegas, NV
Lee Wilder, Supervisor

Designed several pieces of digital and analog test equipment in support of classified AEC projects.

1963 - Summer — Holmdel, NJ
Robert M. Wolfe, Supervisor

Developed a solid-state digital current control servo for the Automatic Identified Outward Dialing translation memory.

PROFESSIONAL EXPERIENCE:

Minor Employment (Consulting)

1982 — AERO Technology
Independence, MO

1981 — Arnold, White & Durkee (Attorneys at Law)
Houston, TX

1978 — National Semiconductor Corp.
Sunnyvale, CA

1978 — Irons & Sears (Patent Counsel)
Washington, DC

1974 - 1975 — Unified Industries
Alexandria, VA

Grants:

1971 — Man-machine communication via programmable tone generators attached to computers ($300) Bureau of General Research, KSU.

1971 — Music generation with a computer/ARP synthesizer interface ($1,700) Bureau of General Research, KSU.

1973 — Digital computer architecture laboratory ($1,340) Bureau of General Research, KSU.

1973 — Electronic control unit for cassette recorders ($675) Bureau of General Research, KSU.

1975 Development of a low-cost hardware monitor ($29,696) U.S. Army Research Office (jointly with V. Wallentine).

1977 Functionally Distributed Computer Systems Development: Software & Systems Structure ($190,000) U.S. Army Research Office (jointly with V. Wallentine, W. Hankley, and F. Maryanski).

1979 Oscilloscopes, frequency meters, terminal equipment, readouts, etc. ($15,509) solicited from various industrial companies for use in C.S. Dept's. micro-lab.

1982 Collage of projects ($500) Bureau of Gen. Res.

1984 A Low-cost Local-area Network for Desktop Computers ($11,952), Administered by the Southeastern Center for Electical Engineering Education for the U. S. Air Force Office of Scientific Research.

HONORS:

1964 NASA Fellowship (3 years), Arizona State University
1963 NSF Graduate Fellowship, Colorado State University
1963 Graduated "with highest distinction", University of Kansas
1962 RCA Scholarship, University of Kansas
1961 BOEING Scholarship, University of Kansas
1961 GOLD SEAL (one of three) for scholarship, Graceland College
1959 National Merit Finalist
1959 Valedictorian, Milton (FL) High School

REFERENCES:

Dr. Paul Fisher, President
Computer & Information Sciences, Inc.
2316 Anderson Avenue
Manhattan, Kansas 66502
(913) 537-0613

Dr. Stephen Lundstrom, Vice President
Micro Electronics and Computer Technology Corp.
Echelon Building #1, Suite 200
9430 Research Boulevard
Austin, Texas 78759
(913) 834-3320

Dr. William Smith
Multi-data Corporation
1866 Golden Way
Mountain View, California 94040 (408) 293-1801

Dr. John Staudhammer
Director Graphics Facility
Dept. of Electrical Engineering
University of Florida

Gainesville, Florida
(904) 392-3261

Dr. Virgil E. Wallentine, Chairperson
Dept. of Computer Science
Nichols Hall Room 234
Kansas State University
Manhattan, Kansas 66506
(913) 532-6350

PUBLICATIONS:

"Electricity as It Affects Our Modern Homes and Farms," First Place, Florida Statewide 4-H Club Public Speaking Contest, 1955.

"A Pseudo-Pulse Emission for the Amateur Bands Below 2.3 GHz," First Place IEEE Student Paper Contest, Undergraduate Division, Region V, 1963.

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

"Cauer Synthesis by Digital Computer," Proc. GET Conf., Scottsdale, AZ, April, 1965.

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

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

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

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

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

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

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

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

"A Mini-Computer Based Distributed Data Base System," Proc. NBS-IEEE Trends & Application Symposium: Micro & Mini Systems, May, 1976 (jointly with F. Maryanski, P. Fisher, V. Wallentine, and L. Sernowitz); CS 76-11.

"Functionally Distributed Computer System Development: Software & Systems Structure," Progress Report, December, 1976 (jointly with V. Wallentine, Wm. Hankley, G. Anderson, and F. Maryanski); CS 77-04.

"Distributed Data Base Management Using Minicomputers," Infotech State-of-the-Art report "Mini's versus Mainframes," October, 1977 (jointly with F. Maryanski, V. Wallentine, and P. Fisher); CS 77-22.

"The KSUBUS - A Functional Description," January, 1977; CS 78-01.

"The KSUBUS - A Detailed Scription," January, 1977; CS 78-02.

"Resistance-Controlled Audible Continuity Tester," magazine, April, 1980, page 01.

"A Shared-Peripheral Network for a Micro-Computer Development Laboratory," MAE-CON, Kansas City, MO, October, 1980.

"Dungeons and Dragons Dice Simulator for the KIM-1," COMPUTE! magazine, June, 1981, pp. 145-146.

"Inexpensive Automatic Send/Receive Changeover Relay," Ham Radio magazine, May 1980, p. 40.

"USER'S GUIDE to the Software Driver Package and the Z-004 Multiport I/O Card", to accompany the Software Driver Package written for the Computer Science Directorate at Eglin Air Force Base, Florida, 1984.

Maarten van Swaay

Nationality: Dutch
Resident: U.S.A.
Born 1930

Marital Status:

Married since 1954

Education:

Candidaat - University of Leiden, the Netherlands, 1953
Ph.D., Physical Chemistry - Princeton University, 1956
Drs., Chemistry - University of Leiden, 1956

Positions:

Research Assistant, Princeton University, 1953 - 1956
Senior Research Assistant, University of Leiden, 1956 - 1959
Senior Staff, University of Eindhoven, the Netherlands, 1959 - 1963
Assistant Professor, Kansas State University, 1963 - 1969
Associate Professor-Chemistry , Kansas State University, 1969 -1982
Associate Professor-Computer Science, Kansas State University, 1982- present

Honorary and Professional Societies:

IEEE Computer
Phi Lambda Upsilon
Sigma Xi
DECUS

Fields of Competence:

Laboratory Computer Applications and Interfacing
Analytical Instrumentation
Assembler Language Programming (Applications and System Components)
Micro-Computer Applications and Interfacing

Recent Experiences:

Assembler Languages, PDP-11, 8088, IBM370

Professional Publications:

D.W. Juenker, M. van Swaay and C.E. Birchenall, "On the Use of Palladium Membranes for the Purification of Hydrogen," Rev. Sci. Instr., 26, 888 (1955).

M. van Swaay, "Some Aspects of Palladium-Hydrogen Systems," Ph.D. Thesis, Princeton University, August, 1956.

M. van Swaay and C.E. Birchenall, "Permeability and Diffusion of Hydrogen Through Palladium," Trans. AIME, 218, 285 (1960).

M. van Swaay and R.S. Deelder, "Trace Analysis with a Rotating Hanging Mercury Drop," Nature, 191, 241 (1960).

M. van Swaay, editor: "Gas Chromatography" 1962, Butterworths, London 1963.

M. van Swaay, "The Design of an Automatic Absolute Flow Meter for Gas Chromatography," J. Chromatog., 12, 99 (1963).

M. van Swaay, "A Fraction Collector for Distillation Columns Operating at Reduced Pressure," Rev. Sci. Instr., 35, 164 (1964).

M. van Swaay and R.F. Lolley, "A Simple Constant-Flow Device for Use in Titrimetric Analysis," J. Chem. Ed., 42, 381 (1965).

M. van Swaay, "Coulometry," Instrumental Analysis, Chapter 14, J.F.J. Krugers and A.I.M. Keulemans, Ed., Elsevier, New York, 1965.

M. van Swaay and J.R. Bacon, ":A Septum-Less Injection System for Use in Gas Chromatography," J. Chromatog., 19, 604 (1965).

M. van Swaay, "Study of Reaction Kinetics from Broadening of Chromatographic Elution Peaks," Advances in Chromatography, J.C. Giddings, Ed., Vol. 8, 1969.

M. van Swaay, "The Control of Temperature," J. Chem. Educ., 46, A565 (1969).

B.A. Cunningham, D.L. Roerig and M. van Swaay, "Solid-State Controller for Fraction Collectors, " Chemical Instru., 2, 405 (1970).

M. van Swaay, S.H. Ediz and H.D. McBride, "Square-Wave Operation of a Thermal Conductivity Detector," Chemical Instru., 3, 299 (1972).

Generator for Electroanalytical Experiments," Chemical Instru., 4, 1 (1972).

E.M. Winkler and M. van Swaay, "An Introduction to Micro-Electronics," J. Chem. Ed., 6, A325, A363, A394 (1973).

M. van Swaay, "A Practical Potentiostat-Coulometer for the Student Laboratory and for Routine Research Use," J. Chem. Ed., 55, 1 (1978).

P.J. Marcoux, M. van Swaay, D.W. Setser and L.G. Piper, "Vibrational Relaxation of $CO^+(A^2\pi_1)$, $CS(A^1\pi)$ and $C_2(A^3\pi_g)$ in Helium," J. Phys. Chem. 83, 3168 (1979).

M. van Swaay and D.H. Lenhert: "Fundamentals of Microcomputers," Carnegie Press 1982.

M. van Swaay, "Creation and Handling of Multi-Volume Directories Under RT-11 with Teco." St. Louis, MO May 1983.

M. van Swaay and G.W. Ewing, "The Teaching of Chemical Instrumentation." Analytical Chemistry, 57, 385A (1985).

R. Fry, E. King and M. van Swaay: Anal. Chem., "Sample Pair Modulation, an Approach to the Measurement of Molecular Fragmentation in Plasmas", 58, 642 (1986).

M. van Swaay: "Moving Decision Points Outward from Applications and Utilities and into Command Level", ACM Sigsmall/PC Conference, San Francisco, 4-5 December 1986.

NAME	David A. Gustafson
ADDRESS	Department of Computer Science Kansas State University Manhattan, Kansas 66506
POSITION	Associate Professor Department of Computer Science Kansas State University Manhattan, Kansas 66506
TELEPHONE	Office Tel. (913) 532-6350

EDUCATION

1967	BS	Mathematics, University of Minnesota
1969	BS	Meteorology, University of Utah
1973	MS	Computer Science, University of Wisconsin, Madison
1979	PhD	Computer Science, University of Wisconsin, Madison

PROFESSIONAL EXPERIENCE

Employment

1977-present	Current Position
1974-1977	Lecturer, University of Wisconsin
1972-1977	Teaching Assistant, University of Wisconsin
1968-1972	Captain, Weather Service, U.S. Air Force

TEACHING EXPERIENCE

Machine Organizations and Basic Systems
Software Engineering
Operating Systems
Data Base Management Systems
Computer Networks

PHD THESIS

Set Execution: An Approach to Program Validation
Major Professor: Dr. D. R. Fitzwater

HONORARY & PROFESSIONAL SOCIETIES

Association for Computing Machinery
Institute of Electrical and Electronics Engineers
Mathematical Association of America
Tau Beta Pi

RESEARCH FIELD

Software Engineering
Program Verification Methods
Software Metrics-Software Testing
Knowledge-Based Tools

PERSONAL DATA

Date of Birth--May 17, 1945
Marital Status--Married
Family—3 children
Citizenship—USA
Military Service—U.S. Air Force, 4 years, Captain

PUBLICATIONS

David A. Gustafson, "Set Evaluation", Ph.D. Thesis, January 1979, University of Wisconsin-Madison.

Meals, Randall and David A. Gustafson, "An Experiment in the Implementation of Halstead's and McCabe's Measures of Complexity", Proc. of S.E. Standards Application Workshop, San Francisco, August 18-20, 1981.

Gustafson, David A., "Control Flow, Data Flow and Data Independence", Sigplan Notices, October 1981.

Arronson, David B. and David A. Gustafson, "HLSEW Screen Editor", KS-CS Tech. Report CS 81-07.

Vestal, Daniel R. and David A. Gustafson, "An Inter-Computer Communications System for a Personal Computer", KS-CS Tech. Report CS 81-08.

White, Barbara and David A. Gustafson, "Application of Halstead's Complexity Measures to Programs Designed with Warnier-Orr Diagrams", Proc of Symp on Application and Assessment of Automated Tools for Software Development, San Francisco, November 1983.

Gustafson, David A., "Guidance for Test Case Selection Based on the Cost of Errors", Proc. of National Computer Conference, Las Vegas, July 1984.

Gustafson, David A., "A Requirement Model for the 5th Generation", Proc ACM 1984 Annual Conference (Oct 8-10, 1984) San Francisco.

Gaylord, Brad C. and Gustafson, David A. "Requirements Analysis Using Petri Nets." ACM Annual Conference Oct. 14-16, 1985, Denver, CO.

Gustafson, David A., Melton, Austin C. and Hsieh, Chyuan Samuel "An Analysis of Software Changes During Maintenance and Enhancement". Conference on Software Maintenance, Nov 11- 13, 1985, Washington, D.C.

Barrett, W.A., R. Bates, D.A.Gustafson, and J.D. Couch, Compiler Construction: Theory and Practice, 2nd Edition, 1986, SRA, Chicago.

Gustafson, David A., "Solution Manual for Compiler Construction: Theory and Practice", SRA, Chicago, 1986.

Baker, A.J. Bieman, D. Gustafson, and A. Melton, "Modeling and Measuring the Software Development Process", HICSS Conference, Hawaii, 1987.

RICHARD ALAN McBRIDE
814 Haid Ct.
Manhattan, Kansas 66502
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Office (913) 532-6350

Education

B.A. (Mathematics) 1968. University of Colorado at Boulder.
M.S. C.S. 1974. Southern Illinois University at Carbondale.
Ph.D. (Computer Science) 1980. Kansas State University.

Computer Related Experience

1972-74	Teaching and Research Assistant, Computer Science Department, Southern Illinois University. Duties included teaching Fortran and serving as a consultant in SPSS and IBM 370 JCL.
1974-1980	Graduate Teaching and Research Assistant, Computer Science Department, Kansas State University. Courses taught included Fortran, PL/1, Operating System Principles, and an introductory survey course for graduate students. Participated in the design and implementation of software-based communication systems, a simulation system, and modifications to a Pascal compiler which these projects necessitated.
June 1979	Consultant, Elbit Computer Corporation, Israel. Ported a version of Pascal to a Pact minicomputer.
1980-1982	Project Manager, NDX Corporation, Toronto, Ontario. Research and planning related to office automation products. Designed and implemented a portion of a turnkey textual retrieval system.
1982-Present	Assistant Professor, Computer Science Department, Kansas State University.

Societies

ACM, IEEE, Upsilon Pi Epsilon.

Personal Data

US citizen; single; Birthdate: January 27, 1948;

Papers

McBride, R.A. "A Generalization of the Hu-Tucker Algorithm to m-ary Trees," Master's Thesis, Southern Illinois University, 1974.

Wallentine, V. and R. McBride, "Concurrent Pascal—A Tutorial, "Kansas State University, Department of Computer Science, Technical Report CS76-17, 1976.

Wallentine, V. E., W. J. Hankley, and R. A. McBride, "SIMMON—A Concurrent Pascal Based Simulation System," Kansas State University, Department of Computer Science, Technical Report CS79-05, 1978.

Unger, E. A. , R. A. McBride, J. Slonim, and F. J. Maryanski, "Design for Integration of a DBMS into a Network Environment," in Proc. Sixth Data Communications Symposium, IEEE, N.Y., 1979.

McBride, R. A., "Modelling Techniques for Data Communication Protocols," Ph.D. Dissertation, Kansas State University, Department of Computer Science, 1980.

Hankley, W. J. and R. A. McBride, "Discrete Simulation with a Concurrent Base Language", Proceedings of 1981 Summer Simulation Conference, Reston, VA., July, 1981.

Slonim, J., V. Wallentine, P. Fisher, L. J. MacRae, and R. A. McBride, "OFFICE/NET: The Backbone of the Automated Office," Electronic Office: Management and Technology, Auerbach Publishers Inc., Pennsauken, N.J., April 1982, 004.0001.013, pp. 1-16.

Slonim, J., L. J. MacRae, R. A. McBride, F. J. Maryanski, E. A. Unger, and P. S. Fisher, "A Throughput Model: Sequential vs. Concurrent Processing," Information Systems, Pergamon Press Ltd., Vol. 7, 1982.

McBride, R.A. and Unger, E.A., "Modeling Jobs in a Distributed System," 1983 Conference on Personal and Small Computers, ACM, pp. 32-41.

McBride, R.A., Unger, E.A., Slonim, J., and MacRae, L.H., "MEDIATOR: An Approach for Providing a Global User View in a Distributed Information Environment" appears as Chapter 6 in Advances in Distributed Processing Management, Vol.2, Wiley Heyden Ltd.

Jantz, D., Unger, E.A., McBride, R., and Slonim, J. "Query processing in a Distributed Data Base," 1983 Conference on Personal and Small Computers, ACM, pp. 237-244.

McBride, R.A., "Viewing Messages as Objects," 1986 ACM SIGSMALL/PC Symposium on Small Systems.

RESUME

NAME: Austin Clark Melton, Jr.

ADDRESS: Department of Computer Science
Nichols Hall
Kansas State University
Manhattan, Kansas 66506

PHONE: 913-532-6350

EDUCATION:
Friends University, 1967-1971, B.A., English
Wichita State University, 1971, 1981
University of Kansas, 1972
Kansas State University, 1972-1974, 1975-1978, 1979-1980, M.S. and Ph.D., Mathematics
Universitat Munchen, 1974-1975
Universitat Bremen, 1978-1979
Marshall University, 1981-1982

FELLOWSHIPS and GRANTS:

Exchange Student to Universitat Munchen, 1974-1975
Fulbright-Hays Fellowship, Universitat Bremen, 1978-1979
Endowment Fund Grant (to attend conference in Prague), Marshall University, 1981
Faculty Development Grant, Marshall University, 1981
Faculty Research Grant (to study one month at Edinburgh University), Wichita State University, 1983
Faculty Research Grant (summer support), Wichita State University, 1984
Faculty Research Award, Kansas State University, 1984-1985
Principal Investigator, National Science Foundation Grant DCR-8604080, 1986-1988.

EXPERIENCE:
Wichita High School North, Mathematics Teacher, 1972
Kansas State University, Graduate Teaching Assistant, 1972-1974, 1975-1978, 1979-1980
University of Maryland, Munich Campus, Mathematics Instructor, 1975
Marshall University, Assistant Professor of Mathematics, 1980-1982
Wichita State University, Assistant Professor of Computer Science, 1982-1984
Kansas State University, Assistant Professor of Computer Science, 1984-present

LECTURES GIVEN:

Universitat Bremen, West Germany, 1979
Fernuniversitat Hagen, West Germany, 1979
Kansas State University, 1979, 1986

Conference on General Topology and Modern Analysis, University of California, Riverside, 1980
Fifth Prague Topological Symposium, Czecheslovakia, 1981
Marshall University, 1982, 1984
Edinburgh University, 1983
Maecon Convention, Technical Sessions, St. Louis, 1984
Washington University, St. Louis, 1984
Iowa State University, 1984
Workshop on Category Theory and Computer Programming, University of Surrey, United Kingdom, 1985
University of Wisconsin, Whitewater, 1986
IEEE Computer Society's Tenth Annual International Computer Software and Applications Conference, Chicago, 1986

PAPERS:

Which Dispersed Diafactorization Structures on 'Top' Are Hereditary?, "General Topology and Modern Analysis", (Proceedings of the Conference on General Topology and Modern Analysis, Riverside, California, 1980), Academic Press, New York, 1981, 281-290.

On the Structure of Factorization Structures, with G. E. Strecker, "Category Theory: Applications to Algebra, Logic, and Topology", (Proceedings of the International Conference on Category Theory, Gummersbach, West Germany, 1981), Springer-Verlag, Berlin, 1982, 197-208.

Hereditary Factorization Structures on 'Top' and 'To', "General Topology and Its Relations to Modern Analysis and Algebra V", (Proceedings of the Fifth Prague Topological Symposium, 1981), Heldermann Verlag, 1983, 477-480.

Galois Connections and Characterization Theorems for Dispersed, Hereditarily Dispersed, and Hereditary Factorization Structures, Quaestiones Mathematicae, 7,4, 1984, 363-376.

An Analysis of Software Changes During Maintenance and Enhancement, with David A. Gustafson and Chyuan Samuel Hsieh, (Proceedings of the Conference of Software Maintenance, 1985).

A Topological Framework for cpos Lacking Bottom Elements, with D.A. Schmidt, (Proceedings of the Conference on the Mathematical Foundations of Programming Semantics, Manhattan, Kansas, 1985), Lecture Notes in Computer Science, Springer-Verlag, 1986, 196-204.

Galois Connections and Computer Science Applications, with D.A. Schmidt and G. E. Strecker, (Proceedings of the Summer Workshop of Category Theory and Computer Programming, Guildford, UK, 1985), Lecture Notes in Computer Science, Springer-Verlag, to appear.

A Synthesis of Software Science Metrics and the Cyclomatic Number, with Bina Ramamurthy, (Proceedings COMPSAC86, Chicago, 1986), IEEE Computer Science Press, Silver Spring, Maryland, 1986.

Modeling and Measuring the Software Development Process, with Albert L. Baker, James M. Bieman, and David A. Gustafson, (Proceedings of Hawaii International Conference on System Sciences), 1987.

TECHNICAL REPORTS:

Structures Supporting Galois Connections, with G. E. Strecker, Technical Report CS-TR-86-1, Kansas State University

Modeling and Measuring the Software Development Process, with Albert L. Baker, James M. Bieman, and David A. Gustafson, CS-TR-86-5

EDITOR:

Proceedings of the Software Engineering Workshop at Wichita State University, 1984. (A copy is in the Wichita State University library).

Proceedings of the Conference on the Mathematical Foundations of Programming Semantics, Kansas State University, Manhattan, Kansas, 1985. Springer-Verlag Lecture Notes in Computer Science, 239.

THESES DIRECTED:

A Software Complexity Measure
Transformational Grammar String Parsing Technique
A Partial Ordering of Flow Diagrams
An Exploratory Study of Software Development Measure Across Cobol Programs

TEACHING EXPERIENCE (GRADUATE CLASSES TAUGHT):

Analysis of Algorithms
Automata Theory
Compiler Design
Computability (Recursive Function Theory)
Denotational Semantics
Elementary Classical Analysis
Formal Language Theory
General Topology
Operating Systems
Programming Languages
Software Engineering

PROFESSIONAL ACTIVITIES:

Principal organizer and conference co-chairperson of the International Conference on the Mathematical Foundations of Programming Semantics, Kansas State University, Manhattan, Kansas, 1985.

Organizer of the International Workshop on the Mathematical Foundations of Programming Semantics, Kansas State University, Manhattan, Kansas, 1986.

Program Co-chairperson of the Third Workshop on the Mathematical Foundations of Programming Language Semantics, Tulane University, New Orleans, Louisiana, 1987.

DEPARTMENTAL ACTIVITIES:

Personnel Committee, Kansas State University, 1976-1978
Search Committee, Marshall University, 1981
Colloquia Committee, Chairperson, Marshall University, 1981-1982
Organized Artificial Intelligence Seminar, Wichita State University, 1983
Association for Computing Machinery Faculty Advisor, Wichita State University, 1983-1984
Mathematical Association of America State Representative (for department), Wichita State University, 1983-1984
Organized LISP Seminar, Wichita State University, 1983-1984
Organized Denotational Semantics Research Group, Wichita State University, 1984
Organized Software Engineering Workshop (for local industry), Wichita State University, 1984
Helped to organize Domain Theory Seminar with the University of Kansas and Wichita State University, Kansas State University, 1984
Organized Denotational Semantics Seminar, Kansas State University, 1984
Helped organize Computer Science-Mathematics Seminar, 1986
Departmental representative to Mathematical Association of America, 1986.

PROFESSIONAL MEMBERSHIPS:

Association for Computing Machinery
IEEE Computer Society

RESUME

1986 October 24, 1986

Name: Thomas Pittman
Kansas State University
Department of Computer Science
Manhattan, KS 66506

Personal Data: Born 1943, USA citizen
Single, no dependents

Academics: (1985) PhD, Information Science
University of Calif, Santa Cruz
Thesis: Practical Optimization by Attribute Grammars Applied to Low-Level Intermediate Code Trees
Advisor: Franklin DeRemer

(1980) MS, Information Science
University of Calif, Berkeley

(1966) BA Mathematics
University of Calif, Berkeley

Experience: (1972-1985) Consultant (self-employed) in microprocessor software, mostly writing complete application programs.

(1984) Chairman, IEEE Computer Society Computer Standards Committee.

(1977-1983) Chairman, IEEE working group to develop a standard relocatable code for microprocessors (P695).

Also sit on several other standards committees and working groups, including Microprocessor Assembly Language (P694), Binary Floating Point Arithmetic (P754) and Media-Independent Information Transfer (949).

Remarks: Professional interests center around ways to increase the information density in artifacts (such as higher performance in smaller computers). Research involves compiler optimization, VLSI computer design, and "expert systems".

Publications:

Generalized Retrieval and Summary Program,
NRDL-0CP-69-1 69

Software: The Genie in the Bottle,
ROM 77 Aug P.32

Putting Two & Two Together
ROM 77 Oct p.32; Dec p.60

Tiny Basic: A Mini-Language,
Kilobaud 77 Jan p.34

A Short Course in Programming,
Kilobaud 79 Jan p.12

Dots
Kilobaud 79 Feb p.84; apr p.34

Tiny Basic and Cosmac,
Personal Computing 79 Mar p.20

Software Standards-Who Needs Them?,
Dr. Dobbs Journal 79 May p.44

Mac the Hack,
Dr. Dobbs Journal 85 Feb

Free Software?,
PCC 77 Mar p.12

Making It In Hobby Software,
IEEE Computer 77 Jun p.101

Coding Theory & Vestigial Organs,
Orgins Research 83 Fall p.2

VACuuM: Variable Architecture...(with JR Davis),
Proc.1st WCCF 77 p. 294

Computer Languages: Key to Processor Power,
Proc.1st WCCF 77 p.245

Deus Ex Machina
Proc.2nd WCCF 78 p.132

The Proposed IEEE Floating Point Standard
Proc.3rd WCCF 78 p.202

A User Looks at Pascal MicroEngine...
Proc.6th WCCF 81 p.353

MINIX: A Minimum Executive
Proc.7th WCCF 82 p.242

...Believable Video Animation
Proc.8th WCCF 83 p.20

Open Mac
Proc.10th WCCF 85

Curriculum Vitae

David A. Schmidt
Computer Science Department
Kansas State University
Manhattan, KS 66506
913-532-6350

Born: May 10, 1953, Colby, Kansas

Degrees:

B.A., Mathematics, Fort Hays Kansas State University, Dec. 1975

M.S., Computer science, Kansas State University, Aug. 1977

Ph.D., Computer science, Kansas State University, May 1981
advisor: Neil D. Jones; thesis title: *Compiler generation from lambda calculus definitions of programming languages*

Employment:

Kansas State University, Manhattan, Kansas: Assistant professor, computer science, June 1986—

Iowa State University, Ames, Iowa: Assistant professor, computer science, Aug. 1984—May 1986

University of Edinburgh, Edinburgh, Scotland: Science and Engineering Research Council research fellow, computer science, Jan. 1982— Dec. 1983

University of Aarhus, Aarhus, Denmark: Research asst., computer science, Aug. 1979—June 1980

University of Kansas, Lawrence, Kansas: Research asst., computer science, Jan. 1979—June 1979

Kansas State University, Manhattan, Kansas: Graduate teaching asst./ research asst./ temporary asst. professor, computer science, Jan. 1976— Dec. 1978, Aug. 1980— Dec. 1981, Jan. 1984— July 1984

Teaching experience:

Undergraduate courses:

Introductory computer programming (Pascal, PL/I, COBOL)
Business data processing
Programming methodology and algorithms
Comparative programming languages
Denotational semantics

Graduate courses:

Comparative programming languages
Compiler construction
Formal semantics of programming languages
Operating systems
Denotational semantics

Research interests:

denotational semantics
applicative programming
natural deduction theorem proving

Referee:

National Computer Conference 1979
Int. Conference on Automata, Languages, and Programming 1982
GI Conference on Theoretical Computer Science 1983
Symposium on Theoretical Aspects of Computer Science 1983
IEEE Int. Conference on Programming Languages 1986
Acta Informatica
Science of Computer Programming
Theoretical Computer Science
John Wiley and Sons, Publishers
Allyn and Bacon, Publishers

Society member:

Association for Computing Machinery
European Association for Theoretical Computer Science

Grant:

Co-principal investigator with A.C. Melton and G.E. Strecker of National Science Foundation Grant DCR-8604080, *Programming Language Semantics and Galois Connections*, July 1986- March 1988, $121,000

Other professional activities:

Program committee member, Conference on Mathematical Foundations of Programming Semantics, Manhattan, KS, 1985.

Cochair, Third Conference on Mathematical Foundations of Programming Semantics, New Orleans, LA, 1987.

Programming experience:

At Iowa State University:

Supervision of a graduate student's implementation of a compiler, evaluator system for a strongly typed version of the programming language used in Henderson's *Functional Programming* book. The system is coded in Pascal.

Supervision of a graduate student's implementation of a denotational semantics-based compiler generating system. The system's input is a Strachey-style denotational definition; the output is a compiler for the defined source language to Cardelli-ML code. The generator uses the LEX/YACC system to convert the language's abstract syntax definition to a parser. The generated parser maps source programs to abstract

syntax trees that are expressed as ML abstract data type values. The generator's semantic generator maps the valuation functions of the definition into an ML-coded syntax directed translation scheme, which itself maps abstract syntax trees to ML code.

Supervision of a graduate student's implementation of an interactive lambda-calculus interpreter. The interpreter displays both intermediate and final stages in the derivation, as the user desires. It contains an extensibility feature that allows it to interpret programs that possess a denotational semantics. The system is coded in ML.

At Edinburgh University:

Design and implementation of a prototype theorem prover for first order logic. The system contained a parser and theorem construction routines. It was implemented in ML and consisted of approximately 600 lines of code.

At the University of Aarhus:

Development and implementation of a multipass text formatting system for type setting and line printing devices. The system was an extension of Bell Lab's NROFF and included features found in Knuth's TEX formatting system. The program contained 5000 lines of Pascal.

At Kansas State University:

Construction and maintenance of a general purpose table-driven macroprocessor for conversion of 7000 lines of ANSI COBOL to Perkin-Elmer subset COBOL. The program was approximately 5000 lines of Pascal.

Construction and maintenance of a simulator for a stack machine architecture proposed by Perkin-Elmer. The interpreter was used as a testing and performance measurement tool in the parallel development of a compiler for the architecture. The simulator was written in 8000 lines of assembly code.

Modification and maintenance of two Pascal compilers.

Construction of a number of small COBOL interface programs for a packet switching network system.

Publications:

Schmidt, D.A. *Denotational Semantics: A Methodology for Language Development*. Allyn and Bacon, Inc., Boston, MA, 331 pages, 1986.

Melton, A., Schmidt, D.A., and Strecker, G. Galois connections and implementation structures. Proc. Workshop on Category Theory and Computer Programming, Surrey, England, Sept. 1985, Lecture Notes in Computer Science, Springer-Verlag, Berlin, in press.

Schmidt, D.A. An implementation from a direct semantics definition. Proc. Workshop on Programs as Data Objects, Copenhagen, October, 1985, Lecture Notes in Computer Science 217, Springer-Verlag, Berlin, pp. 222-235.

Melton, A., and Schmidt, D.A. A topological framework for cpos lacking bottom elements. Proc. Mathematical Foundations of Programming Semantics, Manhattan, Ks., April, 1895, Lecture Notes in Computer Science 239, Springer-Verlag, Berlin, pp. 196-204.

Schmidt, D.A. Detecting global variables in denotational specifications. ACM Transactions on Programming Languages and Systems 7-2 (1985) 299-310.

Schmidt, D.A. A programming notation for tactical reasoning. Proc. 7th International Conference on Automated Deduction, Napa, Cal., May, 1984, Lecture Notes in Computer Science 170, Springer-Verlag, Berlin, pp. 445-459.

Schmidt, D.A. Approximation properties of abstract data types. Theoretical Computer Science 24-1 (1983) 73-94.

Jones, N.D., and Schmidt, D.A. Compiler generation from denotational semantics. Proc. Workshop on Semantics-Directed Compiler Generation, Aarhus, Denmark, Jan. 1980, Lecture Notes in Computer Science 94, Springer-Verlag, Berlin, pp. 70-93.

Schmidt, D.A. State transition machines for lambda calculus expressions. Proc. Workshop on Semantics-directed Compiler Generation, Aarhus, Denmark, Jan. 1980, Lecture Notes in Computer Science 94, Springer-Verlag, Berlin, pp. 415-440.

Slonim, J.S., Schmidt, D.A., and Fisher, P.S. Considerations for determining the degree of centralization or decentralization in the computing environment. Information and Management 2-1 (1979) 15-37.

Maryanski, F.J., Fisher, P.S., Housch, R.D., and Schmidt, D.A. A prototype distributed data base management system. Proc. 12th Hawaii International Conference on System Sciences, Honolulu, Jan. 1979, pp. 205-214.

Technical reports:

Schmidt, D.A. Detecting stack-based environments in denotational definitions (extended version). Report 86-3, Computer Science Dept., Kansas State University, Manhattan, Kansas, October 1986.

Leszczylowski, J., and Schmidt, D.A. A logic for program derivation and verification. Report 86-2, Computer Science Dept., Kansas State University, Manhattan, Kansas, October 1986.

Schmidt, D.A. Tuning architectures to semantic definitions. Report 85-9, Computer science dept., Iowa State University, Ames, Iowa, Jan. 1985.

Schmidt, D.A. Detecting global variables in denotational specifications (extended version). Report 84-3, Computer science dept., Iowa State University, Ames, Iowa, Aug. 1984.

Schmidt, D.A. Natural deduction theorem proving in set theory. Report CSR142-83, Computer science dept., University of Edinburgh, Scotland, July 1983.

Schmidt, D.A. Syntactic type checking using Scott retraction maps. Report CSR112-82, Computer science dept., University of Edinburgh, Scotland, April 1982.

Schmidt, D.A. Denotational semantics as a programming language. Report CSR100-82, Computer science dept., University of Edinburgh, Scotland, Jan. 1982.

Jones, N.D., Muchnick, S.S., and Schmidt, D.A. A universal compiler: towards a compiler generator based upon denotational semantics. Report IR-17, Computer science dept., University of Aarhus, Denmark, Nov. 1979.

Schmidt, D.A. User's guide to the PRECOB text preprocessor, Report CS77-16, Computer science dept., Kansas State University, Manhattan, Kansas, Mar. 1977.

References:

Mr. Robin Milner, Computer Science Department, University of Edinburgh, The King's Buildings, Edinburgh EH9 3JZ, SCOTLAND. ph: (44)-031-667-1081

Professor Neil D. Jones, Computer Science Department, University of Copenhagen, Sigurdsgade 41, Copenhagen N, DENMARK. ph: (46)-01-83-64-66

Dr. George Strecker, Mathematics Department, Kansas State University, Manhattan, Kansas 66506. ph: 913-532-6750.

Dr. Fred J. Maryanski, Dept. of Electrical Engineering and Computer Science, University of Connecticut, Storrs, Connecticut 06268. ph: 203-486-2584

Maria Zamfir Bleyberg

Assistant Professor
Department of Computing and Information Sciences
Kansas State University
Manhattan, Kansas 66506
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RECENT EDUCATION

1982 Ph.D. in Computer Science, University of California, Los Angeles, with a major in Programming Languages and minors in Data Management Systems and Theory (Artificial Intelligence).

1960 Diplomate in Mathematics (equivalent to M.S. in USA), University of Bucharest, Department of Mathematics, Bucharest, Romania.

EXPERIENCE

1986 - present

Assistant Professor, Department of Computing and Information Sciences, KSU.
Teaching Fundamentals of Artificial Intelligence, and Models for Concurrent Computing.
Areas of research activity include work on the algebraic foundation of concurrency, and issues on object-oriented programming paradigms.

1983 - 1986

Visiting Lecturer, Computer Science Department, UCLA.
Teaching Theoretical Models in Computer Science and Structures of Programming Languages.
Research activity included applications of Artificial Intelligence in the development of knowledge-based expert systems for CAD/CAM, and work on a mathematical model of concurrency.

1982 - 1984

Computer Systems Specialist, Research & Development Department, System Development Corporation, Santa Monica, California.
Research activity included the development of a mathematical model defining the semantics of FDM, a formal specification and verification methodology developed by SDC.
Practical applications included the use of the programming language QUIC to add new features to the FDM system.

1982

Teaching Fellow, Computer Science Department, UCLA.

1979 - 1982

Research Assistant, Computer Science Department, UCLA.
Research was conducted to develop a mathematical model of concurrent computing agents, in an attempt to unify the theory of models of concurrent computing agents.

1977 - 1979

Assistant Programmer, Computer Science Department, UCLA.
Implemented a Faculty Data Base System on an SDS 9300 computer, using FORTRAN IV.
Member of the Artificial Intelligence Group, developing the Fuzzy Maze Running Program for IBM 360/90 using LISP.

HONORS

Nominee, The Outstanding Young Women of America, 1981.
Regent Scholarship, UCLA, 1977 - 1979.
Visiting Fulbright-Hays Scholar at Department of Computer Science, UCLA, 1973 - 1974.
Visiting Fulbright-Hays Scholar at Department of Information and Computer Science, University of California, Irvine, 1972 - 1973.

ASSOCIATIONS

Member, Association for Computing Machinery.

RESEARCH INTERESTS

Applications of artificial intelligence in the development of knowledge-based systems.

Mathematical models of concurrency, theory of computation, software correctness and reliability (see details).

RESEARCH IN PARALLEL COMPUTATION

An initial algebraic approach to concurrency is chosen to

1. study and compare Milner's behavioral net model, Petri nets, and other models of concurrent computation in a unified manner;
2. define a least fixed-point semantics of programming languages which exhibit the full power of concurrency, treating parallelism and nondeterminism as distinctive features;
3. define at the syntactic level fundamental properties of concurrent systems including completness, deadlock, and liveness, and study the result of inferring their definitions in all possible semantic domains;
4. formally treat errors in concurrent systems;

5. formally define distributed database systems;
6. generalize Knuthian semantics to concurrent systems;
7. study computational complexity of concurrent systems;
8. generalize Hoare's axiomatic model to concurrent systems using the formalism of Temporal logic.

PUBLICATIONS

1. "A Recurrent Description of the Programming Language FORTRAN", Studii si Cercetari Matematice, TOM 22, No. 8, 1970, pp. 1123-1154;
2. "Automatic Content Coding of English Text", (with P.G. Tripodis, S. Greenstein, P. Dolan, G.H. Shure), Proceedings ICM, CA, 1974;
3. "Initial Algebra Semantics for Knuth Systems", Analele Universitatii Bucuresti, Anul XXV, 1976;
4. "The Axiomatization of Data Base Conceptual Models by Abstract Data Types", (with M.A. Melkanoff), Computer Science Department Report, UCLA-ENG-7785, 1978, UCLA;
5. "A Practical Method for Testing Algebraic Specifications", (with J. Goguen, J. Tardo, Norman Williamson), Computer Science Department Quarterly, January 1979, Vol. 7, No. 1;
6. "On the Syntax and Sematics of Concurrent Computing", Ph.D. Dissertation, UCLA, Report No. CSD-820819, August 1982.
7. "Applications of Artificial Intelligence Techniques to Manufacturing", (with Larry Lichten), UCLA, Manufacturing Engineering Report, 1985.
8. "On the Syntax and Semantics of Concurrent Computing", (with David Martin), Proceedings, Conference on the Mathematical Foundation of Programming Semantics, Kansas State University, April 1985, LNCS 237.
9. "Parallel and Nondeterministic Algebras with I/O Capabilities", in preparation.