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Computer Science

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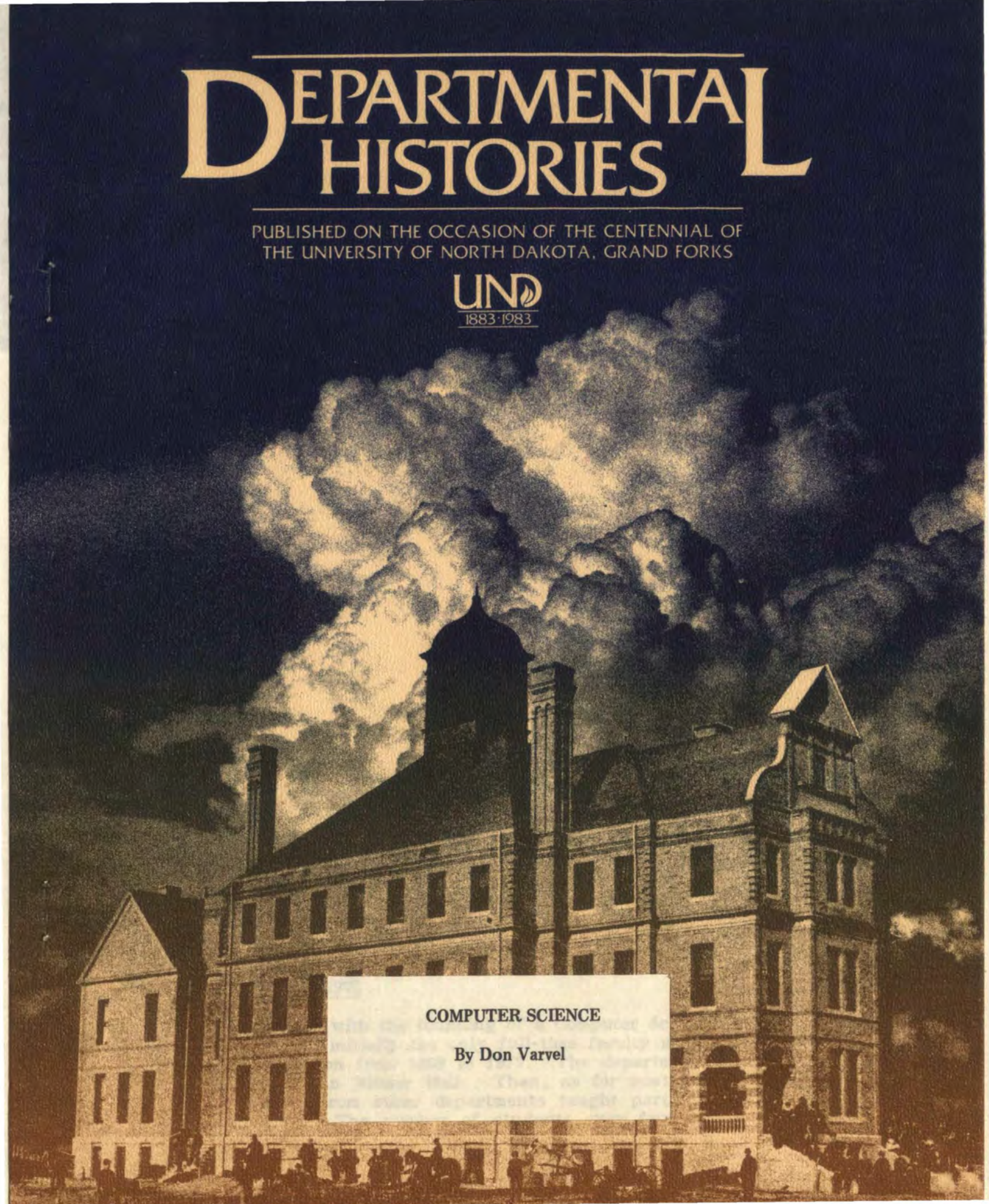
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DEPARTMENTAL HISTORIES

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COMPUTER SCIENCE

By Don Varvel

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Computer Science is among the youngest departments at the University of North Dakota. The department first offered courses leading to a minor in the fall of 1969 and offered a major in the fall of 1971.

BACKGROUND

Computer Science as a university department is a relatively new idea. Some of the first computers were designed and built by university engineering schools. When computers were first offered commercially in the 1950's, universities were early customers. Some universities offered courses in computer programming in the 1950's and most did by the late 1960's.

A body of theory sprang up around computers. The machines became less expensive. New languages were devised to make computing power available to more people. Experts began to argue about computer architecture and language design. Many universities found themselves with similar computer-related courses in several departments. A common solution was to create a computer science department.

University computer science departments frequently branch off from one of three sources: Mathematics, Engineering, or Business. (Sometimes they remain attached). Computer courses emerged in several departments at UND: Business, Education, Engineering and in the College of Arts and Sciences. Computer Science degrees at UND are awarded only by the College of Arts and Sciences.

OVERVIEW

From 1969 until 1975 Computer Science faculty reported to the Dean of Arts and Sciences and shared offices in Witmer Hall with the Mathematics Department. From 1975 until the present (1982) Computer Science has reported to the Dean of Engineering and has had offices in Harrington Hall. That physical and organizational transfer seems a reasonable dividing point for the history of the Computer Science Department at UND. It will be necessary at times to cross the division, especially to follow the careers of individuals and to describe the move itself.

The First Era: 1969-1975

The first era started with the founding of a Computer Science program in 1969, Richard Johnson was initially the only full-time faculty member. He served as Department Chairperson from 1969 to 1977. The departmental office was in the Mathematics complex in Witmer Hall. Then, as for most of the history of the department, faculty from other departments taught part-time in the Computer Science Department. The number of students grew fairly steadily during the

period 1969-75. There were five majors in 1973. By fall of 1975, there were 78 majors. The first Computer Science degree was awarded to Lee Brueni in 1973. For several years, in the mid-70's, around twenty computer science degrees were awarded.

Among the early advocates of a computer science degree, Gene Kemper, then a Professor in the Mathematics Department and now Assistant Vice President for Academic Affairs, and Conrad Dietz, Director of the Computer Center, have continued to provide a positive influence and support. Both were involved in the formation of the department and have been helpful in providing the department with needed computing services. Conrad Dietz has held faculty rank in Computer Science since the department was organized. Both Kemper and Dietz have taught an occasional course in the department.

Faculty and Staff

Faculty expanded gradually in the years 1969-75. In the fall of 1973, Karen Eberhard was hired as half-time faculty. By 1975 she was full-time. In 1973 Mok Tokko received his Ph.D. from Iowa State University and became full-time faculty at UND. He was appointed Chairman in 1977. Leroy Erickson arrived in 1974 as a Graduate Teaching Assistant on loan from the Mathematics Department. He remained under a variety of titles until 1979 and was a major influence on the development of minicomputers, microcomputers, and hardware courses in the department.

During the early years in Witmer Hall the department had a part-time secretary. Phyllis Hellem of the Mathematics Department was especially valuable during the first couple of years.

Curriculum

The curriculum changed considerably during those years. Most computer science departments start out with considerable emphasis on programming and programming languages; later they evolve toward teaching more theory. (Some employers have not always been delighted with this change). Such a shift has occurred at UND, but not as much as at some other schools. The Computer Science Department at UND started out covering programming, applications, and a little hardware and theory. All of these areas still receive some attention, although there is now more emphasis on theory and perhaps a bit less on programming and applications. The arrival of Dr. Tokko in 1973 led to more emphasis on computer science theory.

The Transition

By 1974 Computer Science was clearly outgrowing its office in the Mathematics complex, and the search began for a new home. The Upson II Engineering building was completed in 1975. It connected the existing Engineering buildings of Harrington and Upson I, supplying classroom, laboratory and office space. The computer machine room, student area, and Computer Center offices were in the new building. One of the Engineering buildings seemed like a logical place to locate the Computer Science offices. Negotiations to that end brought an agreement.

The Computer Science offices were moved to Harrington Hall in 1975. Arts and Sciences continued to award all undergraduate Computer Science degrees, but departmental funding and faculty were moved to the School of Engineering.

Computer Science was included in the original proposal for a Masters of Engineering but was deleted from the proposal before it was approved. As of 1982, UND does not have a computer science graduate program, although the idea is again being considered.

The Second Era: 1975-1982

The key concept in the history of Computer Science in Harrington Hall is a story of growth. The teaching faculty in 1975-76 consisted of Richard Johnson, Mok Tokko, and Karen Eberhard. By 1980-81 there were nine faculty members, mostly part-time. The number of computer science majors increased from 78 in 1975 to 324 in 1982. The first doubling took four years; the second took three years. The growth in the faculty has obviously not kept pace with the increased number of students. The increased load has been handled at least in part by teaching larger sections and using student assistants.

Faculty and Staff

The trend over the years 1975-82 has been a gradual increase in the number of computer science faculty. The growth has been fairly steady, although that is not obvious from the list of faculty names. Typically, in a time of expansion, several people are hired to teach part-time, to be replaced later by a single full-time faculty member.

Some of the part-time faculty have been graduate students in other departments; some have been people with degrees in other fields who have returned to the university to get computer science degrees.

In 1975-76 there was no change in faculty. For 1976-77 Phil Erickson replaced Karen Eberhard. He taught only that year.

For the 1977-78 academic year, William Robinson, Daryl Coulthart, and Donald Varvel were hired to teach part-time. For the next two and a half years, Varvel worked in the Computer Center and taught an occasional computer science course. In February of 1981, he became a full-time faculty member.

In the 1978-79 academic year, Susan Crawford worked for the department full-time and the number of part-time instructors declined dramatically. Mrs. Crawford had an MS degree in Mathematics and considerable coursework in Computer Science.

1979-80 saw the first increase in full-time faculty in years. Gene Mahalko and Chung Rhee became full-time instructors and Laura Reece taught part-time.

Gene Mahalko holds an MS degree in Computer Science from Brigham Young University. Before coming to Grand Forks he had worked on several projects relating to the Pascal programming language at Texas Instruments. He is presently (1981-82) serving as Acting Chairman while Dr. Tokko is on leave.

Chung Rhee is close to a doctorate in Computer Science. He taught at UND in 1979-80, returned to graduate school in 1980-81, and is now back at UND.

1980-81 saw a further increase in the number of people teaching Computer Science. The number of majors had just jumped from 194 to 286, and Johnson (on leave) and Rhee (back to school) were replaced by a number of part-time instructors. Teaching one to several courses each were Ken Anderson, Michael Scott, Mike Noyce, and Don Varvel. Phil Bhattacharya was hired as full-time faculty.

Bhattacharya has a Masters of Mathematics in Computer Science from the University of Waterloo and work toward a doctorate at Alberta. He has become especially valuable as the only person in the department who has much experience with the UNIX operating system.

1981-82 has been a year of faculty consolidation. Tokko is on leave, but Johnson and Rhee are back. Richard Walker is full-time, replacing Ken Anderson and Michael Scott. Tad Pritchett, who replaced Leroy Erickson in 1979, is now part-time faculty, as is Edith Muth.

Walker has an MS in Mathematics from UND. For the years before he joined the Computer Science Department he worked as an instructor in Mathematics.

A succession of full-time secretaries worked in the office in Harrington Hall until Debbie DeMers was hired in 1978. She has been department secretary ever since.

Awards

In 1975 Computer Science was nominated for the first time for UND's Outstanding Teaching and Service Award. Although the department did not win that year, the nomination shows how far a new department had come.

In the winter of 1978 the Computer Science department was again nominated for the award, now called the McDermott Award. This time the department won. The number of faculty had not increased greatly since 1974 and the number of majors had more than doubled. Still, the department was able to offer new courses and bring in fresh viewpoints.

Hardware

The primary machines used by Computer Science at UND have always been the large, general-purpose IBM computers run by the Computer Center. Through the years these computers become more powerful and more types of service have been offered; for example, in 1978 interactive computing and remote job entry were offered on these machines for the first time.

Starting in the mid-1970's the Computer Center offered interactive computing on a DEC PDP-8 minicomputer and, by arrangement with the Grand Forks Public Schools, also a PDP-12. Around 1980 support for both minicomputers was discontinued. The large IBM computers provided the same service more economically.

Also, since the mid-1970's the Computer Science department has had computers of its own. The first was a PDP-8, followed by two single-board microcomputers and another PDP-8. Since the late 1970's the department has acquired a variety of microcomputers. All of these machines have been used for minicomputer, microcomputer, hardware classes and for special projects. In 1981 the department purchased a DEC PDP-11/44, which is used in several classes.

Curriculum

For most of the period 1975-82 change in the Computer Science department has been gradual. Several courses have been added, such as Data Structures and Computer Architecture and Computer Programming I. The addition of new faculty has led to new topics courses, such as database and a different emphasis to some old courses.

In 1982 the department drafted a major revision of the curriculum. Without losing its own distinctive flavor, the department now has a selection of courses that more closely matches national guidelines. Graduates of the new curriculum should be better prepared for graduate school and industry.

The Near Future

Obviously the exponential growth in the number of students must level off someday. When that happens perhaps the acquisition of faculty will catch up with the student load.

There is new talk of a graduate program in Computer Science. Finding new faculty will not be easy. If it can be accomplished the entire program should benefit.

The Far Future

Computer Science seems to be here to stay. Demand for Computer Science majors is strong and increasing each year. As the University begins its second century, Computer Science at UND begins its fourteenth year. The future looks bright for the department and its majors.