Department of
Computing & Information Sciences

A newsletter for the
Department of Computing & Information Sciences
Kansas State University
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Castle Computing

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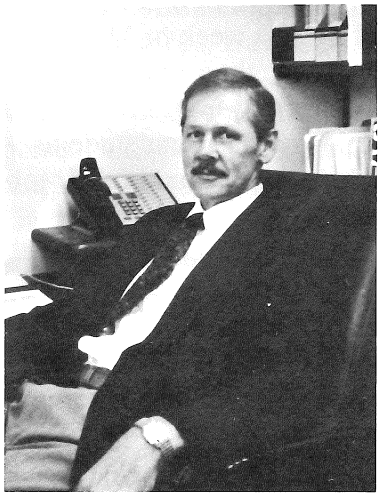
Greetings from the Department Head



I want to open this greeting with a "thank you" for your support of the Department. Some of you have contributed funds; some have helped recruit new students; some have helped in acquisition of equipment; and some have spread the good word about KSU. All of you have been friends to KSU and we thank you.

Because of your interest in the quality of education and research in CIS at KSU, you are de facto members of the Castle Computing Club; and in this edition of "Castle Computing" we will try to give you a perspective on the Department, its people, and its missions. Special emphasis is placed on the accreditation process for our Bachelor of Science degree in Computer Science, a definition of computing sciences, the alumni support for the program, the wide variety of activities of the faculty, the cadre of distinguished visitors to the Department, our students, and our computing environment.

Each year holds both promise and peril. This past year we again were renewed through the bright, inquisitive students who continue to enroll at KSU. Our successful alumni reflect the quality of students who attend KSU. The faculty have been dedicated to imparting fundamental knowledge and providing students experience in problem-solving and critical thinking. The faculty have been very successful in research, both in extramural funding and in publication of their research results. I applaud their efforts and success. This year has also seen further decline in state support for education and research. Budget cuts threaten the quality of both research and instruction. Large class sizes and less-than-adequate laboratories are indicative of a total lack of state support for acquisition and maintenance of computing facilities in a discipline

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which utilizes an experimental and engineering instruction paradigm as well as theory.

Old Nichols Hall (Castle) (Gym) seems an appropriate mixture of medieval exterior with a "high tech" interior to represent the blending of the past of KSU and the bright future of our Information Age. Thus, we have scattered throughout this newsletter little facts about the Department, the University, the building, and the people called Nichols Nuggets. If you have a cherished memory, I invite you to forward it to us for publication in the next issue of the newsletter.

I hope this letter is informative, and please stop back and see us. Also, please keep us up to date on your activities. We would like to publish recent activities of our Castle Computing Club members in the newsletters. Thank you again, for being a friend.

Department Seeks Accreditation

The Department has decided to seek accreditation for the Computer Science Major- Bachelor of Science degree program. The Information Systems Major will be unaffected. This accreditation will be done by the Computing Sciences Accreditation Board (CSAB), located in New York City. This will be a detailed look at all aspects of our CS/BS program. CSAB considers such things as total enrollment in the program, university enrollments, structure of courses, time devoted to different topics in a course, samples of student work in each course, how we fit the ACM guidelines, qualifications of professors, and University support. To date, we have requested and been accepted for examination this year. The preliminary volumes of reports and forms were submitted the last week of May. The accreditation team made their visit in October. We feel confident that our program will pass this rigorous examination and that our students will benefit, both while in school and in their job search.

Soviet Researchers Visit the Department

Perhaps the record for "most distance travelled" by a visitor to the Computing and Information Sciences Department was set in January by two researchers from the USSR's Institute of Informatics Systems, in Novosibirsk, Siberia.

Drs. Ludmilla Cherkosova and Mikhail Bulyonkov visited the Department for three days to meet with Departmental faculty and to continue ongoing research projects with staff. Cherkosova, who studies properties of Petri nets and concurrency, met with Rodney Howell; Bulyonkov, who is an internationally known expert in partial evaluation theory, held discussions with Olivier Danvy and Karoline Malmkjaer. Both visitors presented public lectures during their stay.

The two compared their experiences in academic life to those of faculty members here; many aspects — teaching, reasearch work, deadlines, supervising— appeared the same. But all agreed that the climate of Kansas was somewhat preferable to that offered by Siberia.

Surprisingly, the two Soviets planned their visits to the department independently, learning of their common destination only when they both attempted to book air travel from Novosibirsk to Kansas City.

Following her stay at Kansas State University, Cherkosova journeyed to the University of Texas, where she resides as a visiting guest professor. Bulyonkov proceeded to Florida, where he attended a national computing conference.

Faculty Profile: David Gustafson

Dave started his university work at the University of Minnesota, earning a BS in mathematics in 1967. Dave continued with graduate school in mathematics, but stopped to join the Air Force. While in the Air Force, Dave earned a BS in meteorology from the University of Utah and served four years as a weather officer. Dave then returned to graduate school and earned a M.S. and Ph.D. in computer science from the University of Wisconsin, Madison.

Dave joined the Department in 1977 when it was still located in Fairchild Hall.

Dave has been involved in software engineering since graduate school. One of the first courses Dave taught at KSU was CIS 740 Software Engineering. Although the articles covered and techniques discussed have changed, the call for more formalism that was issued in the first class is still emphasized in the current class.

In the late 70s, Dave and Bill Hankley proposed a required undergraduate software engineering project course. The result was the present CIS 540/541 sequence which Dave has taught since 1984. After years of drawing diagrams by hand and on Macintoshes, the CIS 540/541 students will be using a CASE tool in the Fall 1991 semester.

Dave has authored a variety of journal and conference papers within the area of software engineering including testing, measure, and

maintenance. Dave was a co-author on the 2nd Edition of Compiler Construction and is currently working on the 3rd edition with William Barrett.

Dave is a member of the grubstake group - a group of measure researchers who want to establish theoretical foundations for software measures. The group includes Austin Melton, Albert Baker (Iowa State), James Bieman (Colorado State), Robin Whittey (Southbank Polytechnic-London), and Norman Fenton (City University-London).

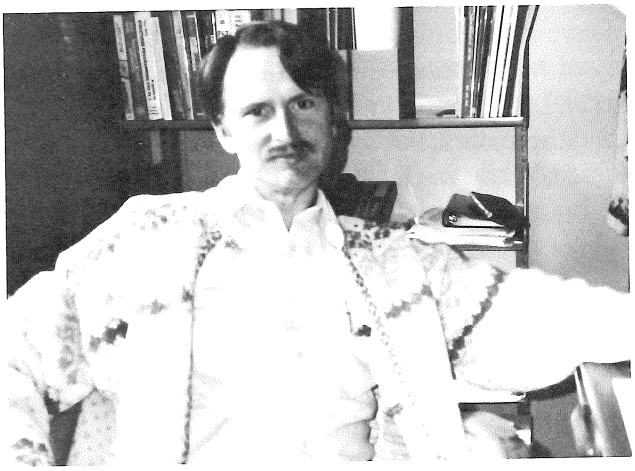
Dave and his wife, Karen, have three children, ages 14, 19, and 22. The whole family is active in their church and Dave is currently on the church council.

Nichols Nugget: The Pools of Nichols

The swimming pools in the original Nichols make an interesting story, especially to high school students visiting the Department. The original building had two pools. The reason was at the time the building was constructed, there had to be separate pools for men and women. Swimming classes were "in the natural state", till swimming suits became popular for women, sometime in the 1920s. This little bit of Nichols history never fails to cause some interesting reactions from visitors.

The swimming pools were probably the main reason Nichols was saved at all. When the building burned, it would probably have been razed immediately, but the pools could still be used. When the new natatorium was built, the plan was to tear down Nichols, but by then the students had organized enough pressure to save the structure. Their petitions and pressure eventually convinced the legislature to allocate funds for the "New Nichols Hall".

Faculty Profile: Austin Melton



Austin's first real involvement in computer science was in a numerical analysis class. He was teaching mathematics at Marshall University in West Virginia, and in the numerical analysis class he and the students wrote programs which would calculate answers for many of the problems.

Austin says this "teaching" of programming was instrumental in getting a teaching position in the Computer Science Department at Wichita State in 1982. At that time there was a shortage of computer science faculty members, and because of this shortage and his limited background, Austin was offered a computer science position - with the provision that he audit three computer science courses during his first year. It was while teaching at Wichita State that Austin began two practices which have been extremely helpful in his development as a computer scientist: he volunteered to teach many new classes and he worked with good graduate students. His research in software engineering began by working with graduate students who had interests in that area. This research area has now grown to include joint work on an international scale and to research in databases, including work in fuzzy databases.

Since joining the Computing and Information Sciences Department at Kansas State University in 1984, Austin has had many opportunities to be involved in the development of computer science - development at a departmental level and at an international level. While at KSU, Austin has traveled and worked with researchers in England, Germany, and Denmark. Those joint research efforts have included work in software engineering, database theory, and programming languages. Also, with the support of the Department, Austin was instrumental in starting a series of international conferences and workshops. The series is called Mathematical Foundations of Programming Semantics. This year the seventh meeting in the series will be held at Carnegie Mellon University. These meetings regularly attract some of the very best international researchers in computer science. The series seems to have aided in the development of theoretical computer science by bringing together computer scientists and mathematicians so that together they can formulate and solve important theoretical questions in programming languages.

Austin says that in the last three to five years especially, we have begun to grow and develop into a research-minded Department. One of the benefits of this "research-growing" includes better classroom instruction - our students can work and study with people who are actively involved in the continuing development of computer science. Austin hopes that this trend will continue so our students can be well prepared to face the new challenges that are continually arising in computer science and so our Department can play a role in the shaping of the future of computer science.

Dr. Beth Unger Promoted

Dr. Beth Unger has been promoted to the position of Associate Dean of the Graduate School. She will remain in the Computing and Information Sciences Department on a half-time basis. She assumed her new duties August 18, 1990.

Congratulations to Dr. Unger and we wish her well with her additional important responsibilites.

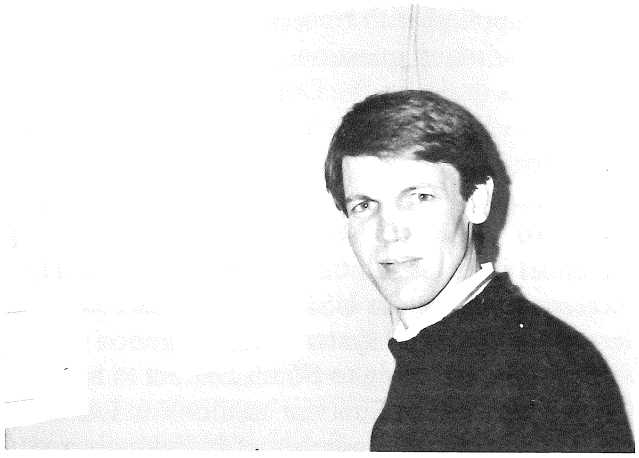
Staff Profile: Harvard Townsend

Harvard has been at Kansas State since 1977 and with the Department since June, 1981. Harvard has a Bachelor's degree in Wildlife Biology from KSU, and he still thinks biologists have more fun. But he also knows that computer professionals make more money, so he jumped ship in 1981 to pursue his MS degree here at KSU. At that time, he taught Chemistry I labs in the Chemistry department to help make ends meet, moving next to grading papers for good ol' CMPSC 300, then finally teaching CMPSC 207 for CS majors at 7:30AM five days a week. Needless to say, that was not the most popular section in the line schedule.

With the graduation of the previous system administrator, Carlos Qualls, Harvard made a decision in May, 1983 about which he has no regrets. He decided to stay in Manhattan in the Computer Science department and pursue system administration as a career. It was not an easy decision since by then he and his wife, Dana, had two children and job offers from the likes of AT&T Bell Laboratories trying to lure them away to the big city and big money. But, with the quality of life and a young family in mind, they chose Manhattan and less money instead.

During Harvard's tenure in the Department, he has seen a lot of systems come and go. Who can forget that fine Interdata 7/32 with the OS/32 operating system? Or the Interdata (later Perkin-Elmer) 8/32 running version 7 UNIX with 2.8 BSD additions, 32K (yes, "K") memory boards, 5 and 10 megabyte removable disk platters, and its daily crashes? Or the Perkin-Elmer 3220? Or the Plexus P/60s? Or the Columbia Data Products PCs? Or smashing the VAX 11/780 front panel into the door knob while trying to force it into Fairchild 117? Or sharing an office with Joe Campbell in Fairchild Hall? Ah, the good old days. Who wants 'em?

Harvard's official title is "Systems Analysis and Programming Manager." This translates into "do whatever it takes to keep the systems running as smoothly as possible." Working with the computer engineer, Earl Harris, Harvard is responsible for the day-to-day operations of all the computer systems in the Department, especially as it relates to software and the end-users.



This constitutes a wide variety of tasks on a wide variety of computers with a wide variety of people - which is indeed part of the attractiveness of his position, there is always something to do.

So just what does Harvard spend his time doing? Probably his favorite thing to do is to talk to sales people (just kidding), which he has to do frequently as he helps plan the future of the computing facilities in the Department.

Besides keeping up with the ever-changing technology, Harvard spends a lot of time answering questions and helping users. He has provided help to a lot of graduate students with their projects, given many seminars both in the Department as well as for student and professional organizations, and written a lot of documents describing our facilities and how to use them. He must also deal with security violations such as the infamous Internet worm that hit our VAX 11/780, several viruses on the Macintoshes, and an occasional over-zealous student who abuses their privileges.

In the good ol' days he even did a lot of programming, working on projects such as the Modula-2 compiler, accounting programs, printer error deamons, and lots of shell scripts for handling a variety of system administrator tasks. Now he manages four systems programmers and analysts who do the REAL work. Under Harvard's supervision, these four students take care of such important tasks as backups, bug fixes, software installations and upgrades, porting software to new platforms, developing new software, and keeping the

Harvard Townsend (continued)

printers supplied with ribbons and paper. They also answer many questions from the users. Besides his duties in the Department, Harvard also regularly consults with companies that have a need for his expertise. He spent several weeks in Washington, D.C. several years ago training the Metro (public transportation) computer personnel in Unix and C. He has trained over 200 employees of the USDA Soil Conservation Service in Unix and system administration and will soon be traveling to South Dakota to help set up a network of Sun workstations and servers. He has helped a number of individuals and small businesses here in Manhattan, and just finished a very large C project that is being used by a local agricultural firm (it is also being used in Brazil and will soon make its way to Canada).

Although it may seem like Harvard has a lot to do, it is actually hard for him to find time to work. First of all, he takes his family responsibilities quite seriously, with calls for time helping his wife at home, spending time at his children's grade school, watching gymnastics or soccer or whatever, putting together puzzles, playing catch, taking vacations (that's important), etc. He is also very active in the Church of Christ here in Manhattan where he is a deacon. And on any given day, rain or shine, hot or cold, you are likely to see Harvard pounding the streets, paths, or pools of Manhattan in preparation for the next running race, bike race, biathlon, or triathlon. He and his wife have become serious addicts of exercise and particularly enjoy racing, either individually or as a team. Harvard's main goal is to keep at least one step ahead of Dana, and is just barely attaining that goal. However, Dana is the one who brings home the trophies while Harvard only brings home tired muscles.

So what are Harvard's hopes for the Department? He has two which are related. He would really like to see improved computing facilities for the undergraduates. With the addition of Sun workstations and X Window System display stations in the Department, the faculty and graduate students are well-equipped to move forward in their research and instruction. The undergraduates, however, do not have adequate access to these facilities simply because funding is not available. They are left to contend with slow, out-dated technology. This problem leads to Harvard's other hope for the Department - adequate funding. One of his biggest frustrations is having to do so much with virtually no budget for hardware and software. It is a testimonial to Earl, Harvard, and the systems staff that we are able to have such extensive, reliable computing facilities with such little financial support. As our Department and computer science in general matures, Harvard hopes that the University's commitment to this discipline will grow accordingly.

Computer Labs

Fairchild Hall is now in the process of being remodeled to make it accessible to physically limited students. There will be an elevator and stairs installed in the southeast part of the building. The center staircase and the open area we laughingly called the "Fairchild picnic area" will be converted into storage and restrooms. In anticipation of this change, the old PC labs that were in the basement were moved to room 202 last fall.

Within the next year we will be converting the basement of Nichols to computer labs. The basement is currently used as book storage for the library. Foundation has purchased the old Farm Bureau building on Anderson Avenue and will turn part of it over to be used by the University. The books will be moved to that facility, opening space for new teaching computing labs, GTA spaces, and experimental computer labs.