

# KSU Computer Science: Nichols Hall, 1986-2000



# The history of KSU CS can be grouped into these “eras”:

- Fairchild Hall: 1971-1985
- Nichols Hall, part 1: 1986-2000
- Nichols Hall, part 2: 2001-2015
- Engineering Hall: 2016-present

These slides summarize “Nichols Hall, part 1”

# When CS was founded in 1971, there was no place to put it.

- The Department with its labs and classrooms was stuffed into Fairchild Hall with the Graduate School, Financial Aid Office, and the Psychology Department's pigeon/rat labs. (There was a terrible problem with cockroaches due to the sacks of feed left downstairs!)
- Virg Wallentine, CS Head, searched for a new home, and proposed to move both CS and Statistics into Dickens Hall. This went nowhere.
- The turning point came in 1979, when University president Duane Acker proposed that the shell of Nichols Hall be razed for a parking lot. The resulting outcry was immense and led to the reconstruction of Nichols....

# A short history of Nichols Hall



Nichols Hall was built in 1910, named after former President Ernest Nichols. It held the basketball gym and separate swimming pools for men and women.



Sheep trimming the grass prior to graduation, 1917.



The basketball gym proved inadequate, and Ahern Fieldhouse was built in 1950. The Music Department, Military Science, and the campus radio station took over the resulting space (hence, the radio towers next to the building).



On Friday, December 13,  
1968, an arsonist, likely  
“inspired” by campus  
protests, set Nichols Hall  
ablaze. The building was a  
total loss.







The Music Department, in particular, was devastated --- all its scores and instruments were lost. The only piece of music that survived was a new marching-band song, the “Wabash Cannonball,” which the band director had taken home with him earlier that evening to study.





Nichols Hall sat, an empty shell. In 1979, President Duane Acker proposed that Nichols be razed. This triggered protests and a “Castle Crusade”:

By good fortune, the State of Kansas received a chunk of Federal settlement money; half was directed to the restoration of Lied Hall at KU, and the other half went to Nichols.





# Nichols Hall Dedication Program, 1985

## Kansas State University

Welcomes You  
to the Dedication of  
Nichols Hall  
Saturday, November 16  
Nineteen hundred and eighty-five  
11:00 a.m.

## Dedication Program

Welcome and Introductions

Norma D. Bunton, Retired Head  
Speech Department  
Kansas State University

Greetings

Lawrence Jones, Chairman  
Board of Regents

Remarks

Steve Brown, President  
Student Body

“Challenges of Preserving  
Nichols’ Structure”

Warren Corman, Architect  
Board of Regents’ Office

“Student Involvement in  
Preserving Nichols Hall”

Greg Musil  
Legislative Assistant to  
U.S. Senator Nancy Kassebaum

Men’s Glee Club

Gerald Polich, Director  
Department of Music

Dedicatory Remarks

Duane Acker, President  
Kansas State University

Guests are invited to participate in  
reception and guided tours following  
the ceremony.



## From Royal Purple Yearbook, 1986

# Dream Come True

When it counts, K-State students are there.

While not the most trendy, innovative and outspoken students in the United States, at times when it matters, K-State students have come through.

The strong and majestic walls of Nichols Hall are a tribute to that spirit, for without the effort of K-State students, those walls would be no more than a pile of stones.

Nichols' claim to fame comes from a long history of controversy and student protest. Nichols' early history is typical for a building.

In June 1909, the Kansas Board of Regents proposed the building of a new gymnasium-armory to be named after E.R. Nichols, university president from

1899-1909. But Nichols Gymnasium's fate took a near-fatal twist when it was gutted by fire on a cold December evening in 1968.

During the years following the fire, the 75-year-old building was the focal point of protest marches, Collegian editorials, Castle Crusade — a campus group dedicated to the preservation of Nichols — and committees set up to study the feasibility of renovation.

Nichols was discovered burning at 11:15 p.m. Friday, Dec. 13, 1968. A reportedly heated meeting between students and administrators had taken place the day before. The confrontation, concerning student rights, was cited as the impetus for the arson; however, no one was ever charged.

The fire left the student-operated radio station, KSDB-FM, Extension Radio and

Television — which operated KSAC, the University's AM radio station — women's physical education and the Department of Music without a home.

Following the fire, the four lampposts in front of Nichols, given to the University by the Class of 1913, were moved to the pedestrian court north of Anderson Hall.

Nichols' two swimming pools, the only things within the charred walls considered salvageable, were renovated in the summer of 1969. Swimming lessons were taught there until the completion of the Natatorium in 1972, at which time Nichols was boarded up.

The issue of what to do with the reinforced concrete walls covered by 2-foot-thick pieces of limestone never died. Architects

students performed studies on renovation, and a "Save the Castle" petition was introduced to students in the early '70s.

Concern about Nichols' future moved in waves, but gained momentum in February 1976, when Castle Crusade was recognized as a campus organization by the University Activities Board. The organization worked to keep the issue of Nichols' preservation and renovation in the news.

Dan Gibson, 1976 graduate in architecture and coordinator of Castle Crusade, said when the small group was founded, mostly architecture students were in it.

"A lot of people considered (Nichols) an architectural symbol of an era. The detail, the style, the location — there was a good

(continued on page 86)



1968

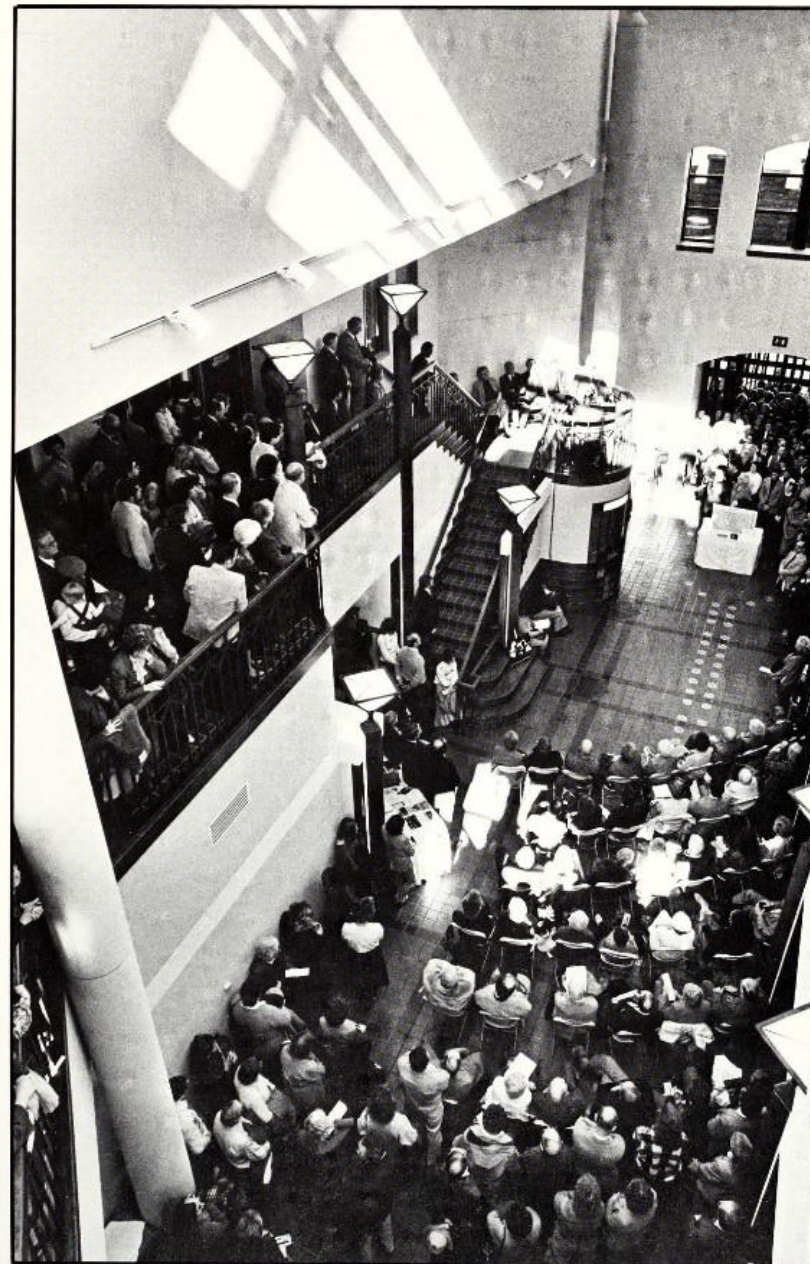
The 57-year-old Nichols Hall went up in flames Dec. 13, 1968, and illuminated the sky for firefighters and onlookers. The cause of the fire was never determined.

1975

Nichols Gymnasium stood vacant since 1972, when the two swimming pools, added to the building in 1915, were closed after the opening of the Natatorium.

1985

Nearly 17 years after the interior of Nichols Gymnasium was destroyed, the renovated structure was officially rededicated on Nov. 16, 1985.



The dedication of Nichols Hall brought both together those who worked to save the building and those who knew the building in its early life. (Photo by John Sleezer)



# A Dream

reason for keeping it. We really put our hearts into this," Gibson said.

"The group tried to publicize the Nichols Gym situation," he said. "We didn't try to push for any use for the building. We just worked on raising awareness for it and raising funds for it. We just tried to keep the issue alive."

Interest in Nichols swelled again in April 1979 when President Duane Acker announced he would seek funds from the Kansas Legislature to raze the structure so the site could be used for other campus buildings.

The announcement set off a protest which took place south of Anderson Hall. About 800 student and faculty protestors filled Mid-Campus Drive and a portion of the Fairchild Hall lawn.

Greg Musil, protest participant and student body president in 1979, said there were many reasons for preserving the ivy-covered walls.

"It's a massive and impressive piece of history," Musil said. "Also, the best

estimates we could get on short notice said that you could build within the walls for about the same price as it would take to construct an entirely new building.

"K-State has a long history, but people won't remember that history unless it is preserved," he said.

Funding for the Nichols renovation was granted by the Legislature in 1981 and construction began in the fall of 1983. Although the multi-year appropriation allotted nearly \$6.2 million for the project, the final cost of the renovation was \$5.58 million, said Vincent Cool, associate director of planning for University Facilities.

The completion of Nichols' renovation and the beginning of the building's new life was officially recognized at a rededication ceremony November 16th. Participating in the ceremony were University administrators, representatives of the Board of Regents and others who were involved in the Nichols project.

"This building is a symbol of excellence.

It is a symbol of the excellence of K-State," Lawrence Jones, chairman of the Board of Regents, said at the ceremony.

The restored building houses the Department of Speech, the Department of Computer Science and a collection of books and monographs from Farrell Library.

The renovated Nichols includes a three-story, oak-rich atrium making use of natural light provided by a sunroof. High-backed oak benches nestled into the east side of the atrium afford a retreat from the bright afternoon sun.

The building also houses Nichols Theatre. The theater's stage, lighting and audio equipment is used primarily for rehearsal and productions, but is also utilized for classes in stage production, said Lee Shelton, associate professor of speech.

The basement of Nichols is being used by Farrell to house between four and five miles of adjustable shelving for storage of serials monographs and documents, Cool said.

— Jill Hummel



The basement of Nichols Hall houses between four and five miles of adjustable-shelf storage space for serials, monographs and documents from Farrell Library. (Photo by Andy Nelson)

High-backed oak benches offer students a place to relax away from the mainstream traffic of the Nichols Hall atrium. (Photo by Andy Nelson)



The atrium of Nichols Hall is home to the K-State Players box office. Nichols houses the speech and theatre department as well as the computer science department. (Photo by Andy Nelson)

Fire protection for computer equipment is provided by a halon gas system which releases the gas into a room and smothers the fire without damaging equipment. (Photo by Andy Nelson)







Computer Science and Speech were the two campus departments most desperate for proper facilities. They took the west and east wings, respectively. The KSU Library used the basement for storage. (There were some politics involved in including the Library in the arrangement.)

*Mural, east wall of atrium:*



In January 1986, situated in their new building, the CS Department was poised for growth --- where would this lead?

## Computer Science

Virgil E. Wallentine, head of department

Professors Fisher,\* Hankley,\* Unger,\* and Wallentine;\* Associate Professors Calhoun,\* Conrow,\* Gallagher,\* Gustafson,\* Hartley,\* and VanSwaay; Assistant Professors McBride,\* Melton,\* and Miller; Instructors Basham and Campbell.

From KSU  
General Catalog,  
1986

Not listed above was a new hire, Asst. Professor Tom Pittman.

**Tom Pittman** was a living legend in the start-up world of Silicon Valley in the 1970s. He was the author of Tiny Basic and Grand Slam Tennis and was featured in Steven Levy's book, *Hackers*.

Tom wanted to understand language translation more deeply, so he completed a PhD at Univ. Cal. Santa Cruz with Frank DeRemer. Dave Gustafson met Tom at a conference and aggressively recruited him to come to KSU, which Tom did in 1985.

Tom taught compiling courses and organized the KSU Macintosh group, but he felt ill at ease in the "publish-or-perish" world of academia --- he left at the end of 1988 to return to San Jose and his consulting work, which he still performs. While at KSU, Tom coauthored a standard-reference compiling text with his student:

**The Art of Compiler Design: Theory and Practice** 1st Edition

by [Thomas Pittman](#) (Author), [James Peters](#) (Author); Pearson, 1991.

Tom remains a private person (so, no photo here!) and is remembered for his intellect, pleasant smile, deep religious convictions, and his insistence on riding his bike to work every day of the year, regardless of the weather, attired in his tweed sports jacket and tie, complete with tie clip. Tom said, "to understand computer science, you must understand Shannon's Information Theory" (good advice!).

Tom maintains a comprehensive web site: <http://www.ittybittycomputers.com/>

# In 1986 CS became CIS: Computing and Information Sciences

Several years earlier, the CS Department added an Information Systems (IS) major to its undergraduate degree programs. The IS program was meant for students who were interested primarily in applications development (and not hardware, systems programming, theory) and was meant to be an attractive alternative to MIS studies. The new title also made the Department sound more important and wide-ranging.

Several high-profile departments (notably Univ. Pennsylvania) changed their names from “CS” to “CIS”, so Virg Wallentine lobbied and achieved the same for KSU’s. The IS-part of CIS remained active until 2015, when it was discontinued (software engineering is its successor) and CIS reverted to CS (in 2016).

One problem with the name, “CIS”, was that large parts of the KSU community never got it right, e.g., “Computer and Information Systems”. Ouch!



# Delving into Programming Semantics

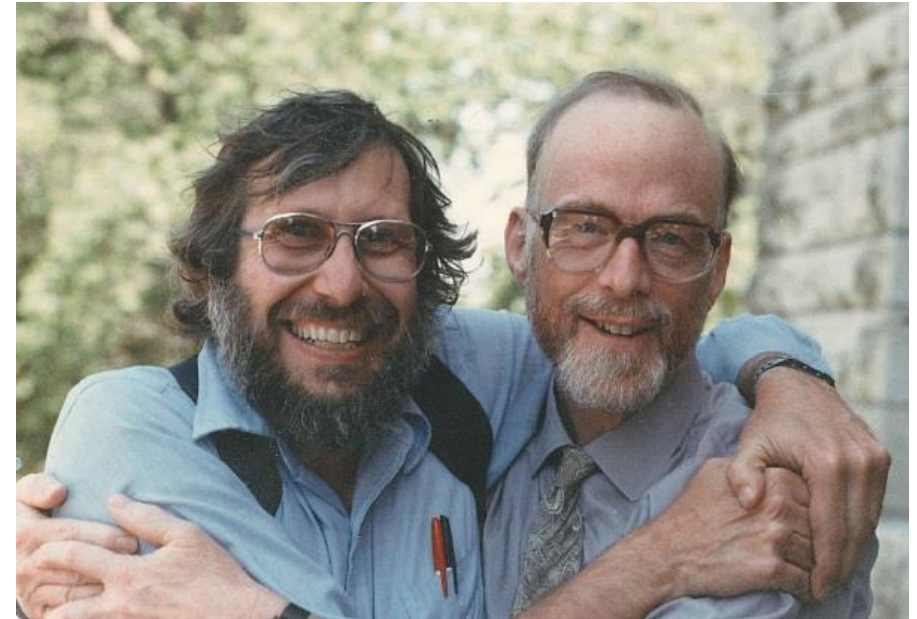
In the 1990s, KSU CIS grew into a Top-5 Department in the USA in programming-semantics research. Here's how it began.

The story starts with a KSU Math Professor, George Strecker. George was a top-notch topologist and category theorist and a co-author of a text standard (*Category Theory*, H. Herrlich and G. Strecker, Allyn & Bacon, 1973). He knew only a little about computing.

One of George's students was Austin Melton (more to come), and another was Dave Schmidt (more to come). George connected Austin with Dave, and the ball started to roll....



George's  
"official" KSU  
photo



With Tony Hoare, Nichols Hall, 1992. George became an adjunct professor in CIS in 1990.

# Austin Melton

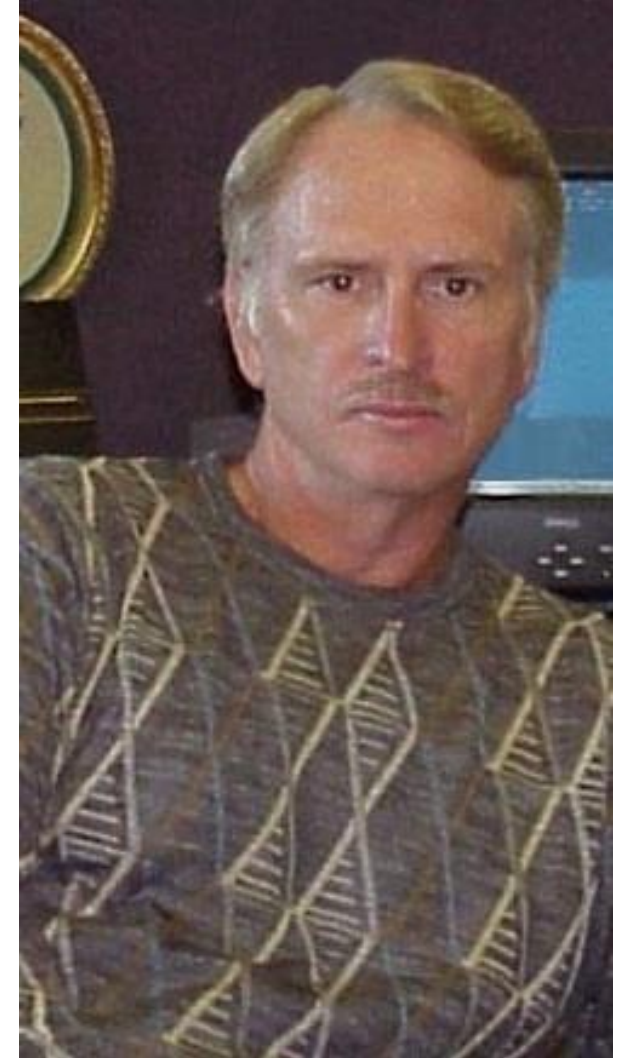
A high-school math teacher from Wichita, Austin Melton returned to KSU and completed a PhD with George Strecker, studying Galois connections. Austin taught math at Marshall Univ. but wanted to move into computing. He took a post at the Computer Science Dept. at Wichita State and was recruited by Virg to come to KSU in 1984.

Why? George Strecker had introduced Austin to Dave Schmidt, who was working at the Univ. of Edinburgh at the time. Austin visited Dave in Scotland, and when Dave returned to KSU, he drove to Wichita once a week for a series of Austin's programming-semantics seminars. Virg saw the potential of a "critical mass" and hired Austin even though Dave left KSU.



At KSU, 1990

- Austin was a talented writer (he had a B.A. in English) and readily absorbed novel technical material. During his stay at KSU, he published papers in math, programming-semantics, database systems, and software metrics! (The later were done with the “Grubstake Group” that included Dave Gustafson and faculty from Iowa State Univ.)
- Austin had a low-key persona that belied his unrivalled “people skills” --- he could coax a favor from most anyone. He used this skill to recruit high-powered computing scientists (e.g., Dana Scott, Tony Hoare) to visit KSU, to acquire research funding from proprietary sources (notably, the Office of Naval Research), and to organize several KSU-hosted conferences.
- Ultimately, Austin moved to administration, leaving KSU in 1992 to be dept. head at Michigan Tech. Univ. and next at Kent State Univ., where he currently resides.

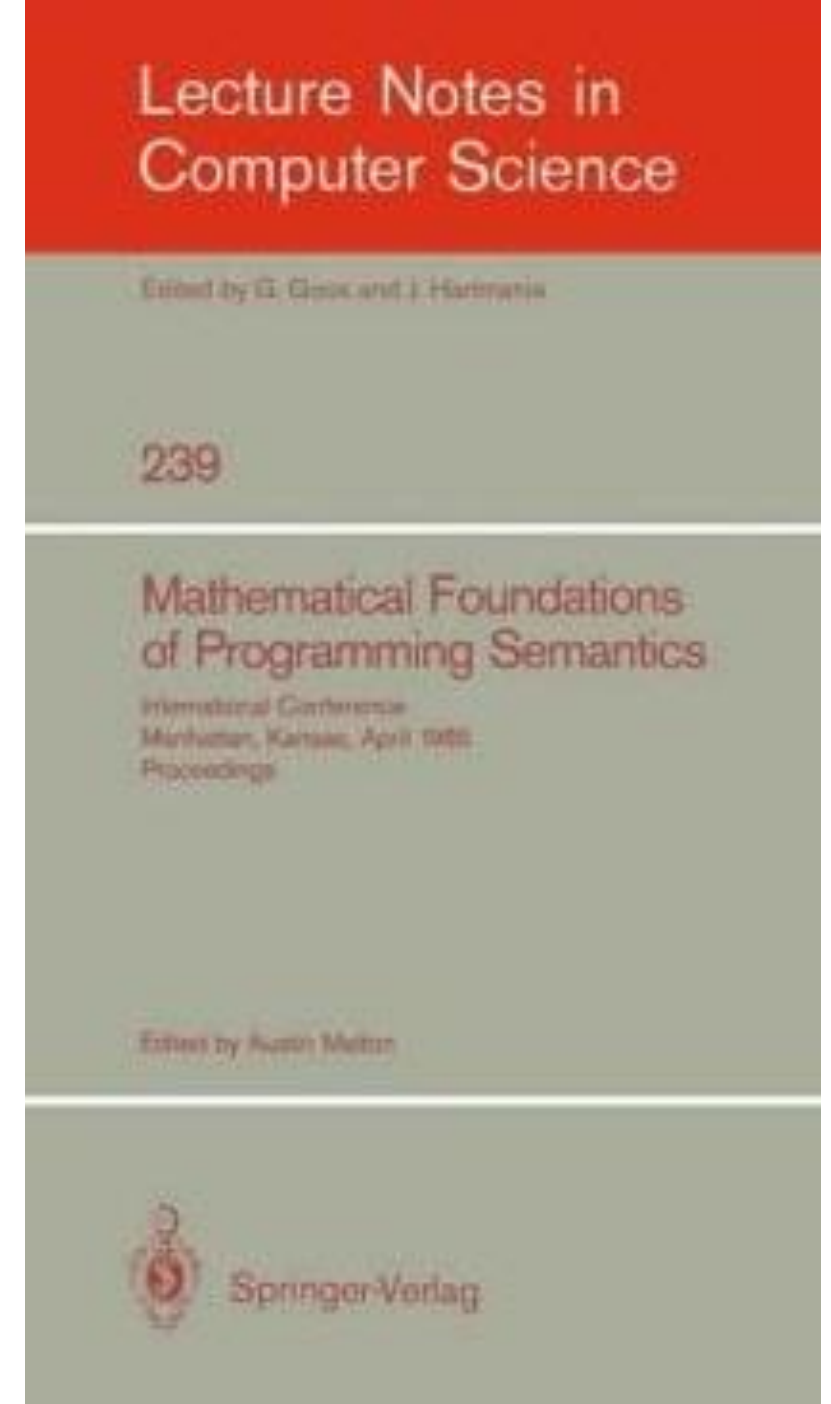


# Mathematical Foundations of Programming Semantics (MFPS)

An event that shaped the CIS Department for the next ten years was a workshop organized by Austin around the visits of Dana Scott, Steve Brookes, and Carl Gunter of Carnegie-Mellon to KSU: the first MFPS workshop, held in April 1986.

Organized on a shoestring, the workshop was a huge success, reinvigorating programming-semantics research in the USA and bringing together a collective of top researchers, including two who would move to KSU that autumn: *Maria Zamfir-Bleyberg* and *Dave Schmidt*.

Never shy to ask, Austin coaxed Springer into publishing the workshop's proceedings (LNCS 239), which proved highly influential and led to a long series of MFPS meetings.





# Maria Zamfir-Bleyberg



Maria, 1988

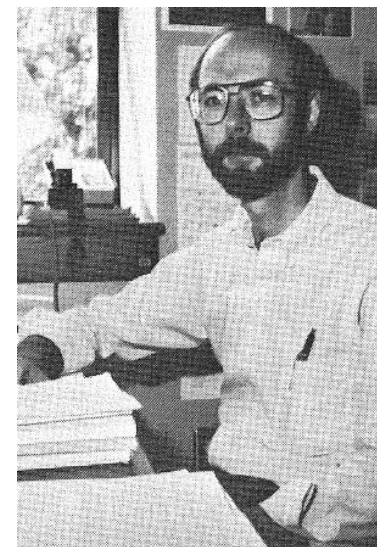


Maria, 2016

- In the 1970s, Maria was a mathematician in Romania. Since her husband was well-positioned in the Communist Ceaușescu regime, she was allowed to leave and study computing at UCLA. Maria was taken back to Romania against her will, but UCLA successfully negotiated her release so she could finish her PhD.
- Maria studied algebraic semantics and presented her work at the MFPS workshop. Austin and Virg recruited her for KSU, and she joined in the fall of 1986, while her (second) husband, a physician, remained in Los Angeles. Long commutes were a big part of Maria's life. Maria taught computing theory, databases, and artificial intelligence. She performed in plays and was a painter.
- Maria was kind hearted and determined, and her career at KSU lasted until her retirement in 2005.
- See <http://www.mariazamfirbleyberg.com/>

# Dave Schmidt

- A native Kansan, Dave completed his PhD at the Univ. of Aarhus, Denmark, under KU's Neil Jones, who was a visiting professor at Aarhus. Beth Unger acted as Dave's KSU advisor --- Dave was the only student of the joint KSU/KU PhD program to have supervisors from both schools.
- He spent two years as a post-doc for Turing-award winner Robin Milner at Univ. Edinburgh (Scotland) and then worked at Iowa State University. Dave returned to KSU in 1986 to work with the newly formed semantics group of Strecker/Melton/Zamfir-Bleyberg.



Dave, 1986



Dave,  
2012,  
wearing  
the same  
shirt

Dave was a tireless researcher. Along with George and Austin, he obtained the Department's first ever National Science Foundation (NSF) grant, *Programming Language Semantics and Galois Connections*, in July 1986. Dave was an Investigator on many NSF grants, including joint ones with Univ. Cal. Berkeley and MIT.

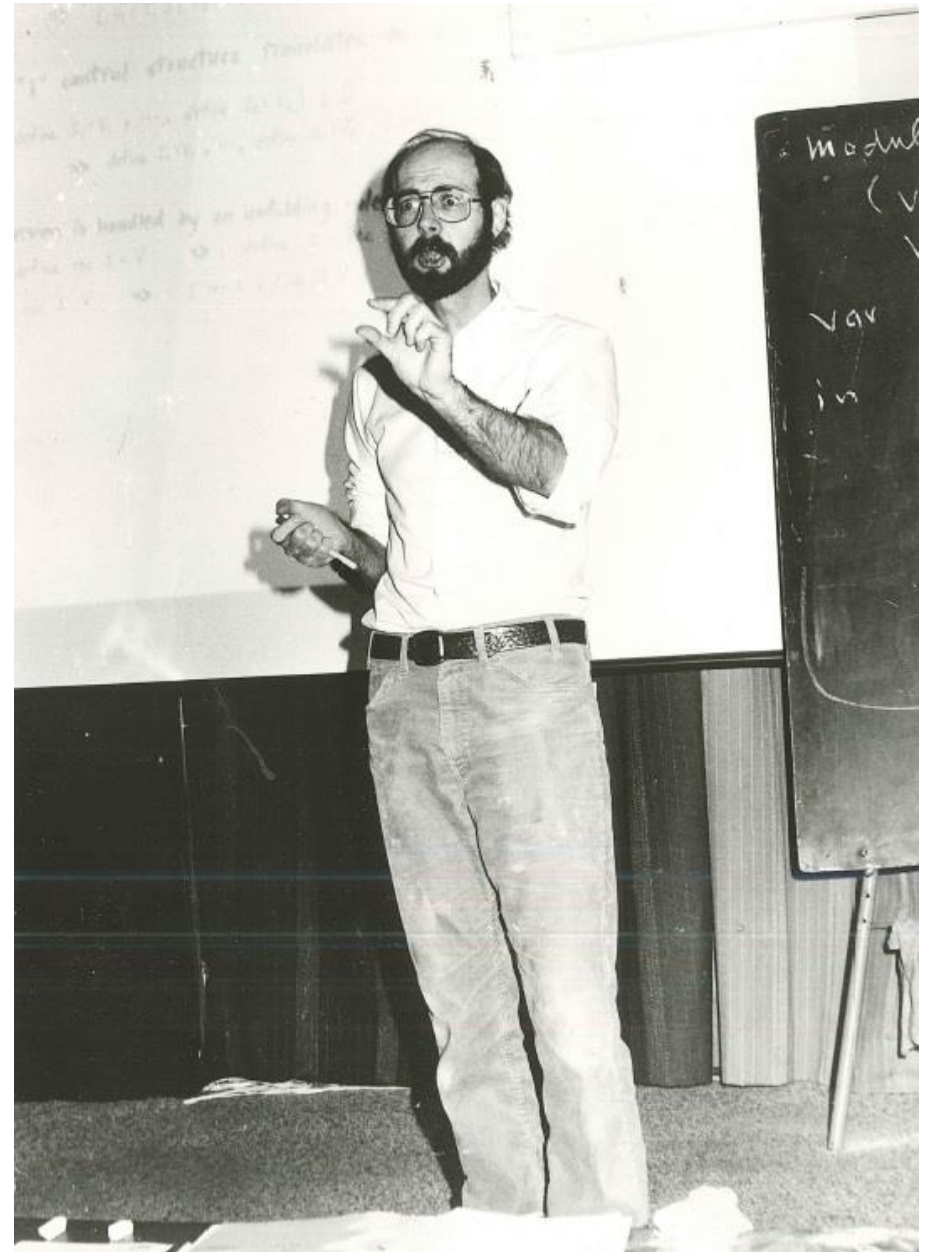
His book, *Denotational Semantics* (Allyn and Bacon, 1986) invigorated semantics research in the US and was adopted by over 300 schools worldwide.

Dave taught mostly graduate courses till 1995, when at Virg's request he took over the freshman CIS200 course.

Over the following 20 years, Dave taught almost exclusively undergraduate courses, maintaining quality of the undergrad curriculum and making room for junior faculty to teach at the grad level.

Using NSF funding Dave sponsored multiple post-docs at KSU, and he was a funded visiting professor himself at schools in Denmark, Scotland, and France.

Dave was elected a University Distinguished Professor in 2003 and held both the Tointon Engineering Chair and the Lloyd T. Smith Engineering Chair. He retired in 2015.



Czechoslovakia, 1990





## Brad Blaker

- Brad was a local Manhattan-ite and PhD student, working with Maarten van Swaay. He developed cancer and required a bone-marrow transplant.
- The Department rallied behind him, but Brad lost his battle with the cancer and died in 1988.
- In his memory, the Department dedicated the Brad Blaker Library in Nichols Hall, Room 236, next to the front office. For three decades, the Library served as a repository for the Department's extensive book and technical-report collection.
- Brad's photo and a small part of his Library have been moved to the Department's meeting room in the new Engineering Hall.



In 1987 and 1988, Virg Wallentine successfully lobbied for two additional faculty positions to fill holes in the Department's teaching and research needs. The resulting hires brought on board two people who shaped the Department's personality for the next three decades while preserving its atmosphere of hard work and congeniality: *Masaaki Mizuno* and *Rod Howell*.

# Masaaki Mizuno



- A key person in the Department's Nichols-Hall era, Masaaki came to KSU in 1987 via Iowa State, Penn. State, and Japan. He had expertise in hardware, distributed systems, and software engineering, the latter developed through his extensive consulting work in Japan with Hitachi, when he wrote operating systems for automobiles. His work led him to win several NSF grants and supervise future CIS faculty member, Mitch Neilsen.
- Masaaki was an energetic and engaged teacher, spending huge amounts of time meeting one-on-one with students.
- Masaaki developed many courses at the undergrad and grad levels, most notably the keystone undergrad course, Software Architecture (CS501), in which novice programmers mature into software engineers.
- Masaaki is known for his work ethic, his inquisitiveness, and his card tricks(!)

Masaaki co-developed a course series for advanced students at Han Yang Univ., Seoul. Here he is shown with Kyung-Goo Doh, a KSU PhD grad and Han Yang Professor, in 2015.

# Rod Howell

- A native Kansan, Rod has been a fixture of the Department since 1988. Rod studied with Lou Rosier at U. Texas Austin and co-authored with Lou many crucial papers on computational complexity.
- Over the decades, Rod has provided invaluable teaching and service work, most notably at the undergraduate level. He developed the modern versions of the Department's data structures and algorithms/complexity courses and has managed Undergraduate Studies, Curriculum, and Accreditation activities. The Department simply would not have CSAB/ABET accreditation without Rod.
- Rod is known for his calm demeanor, well-grounded personality, intellect, and deep religious beliefs, the latter leading him to make annual summer missionary trips abroad for several decades.



Through a  
photographer's  
lens, 1988



Through a  
webcam's  
lens, 2013

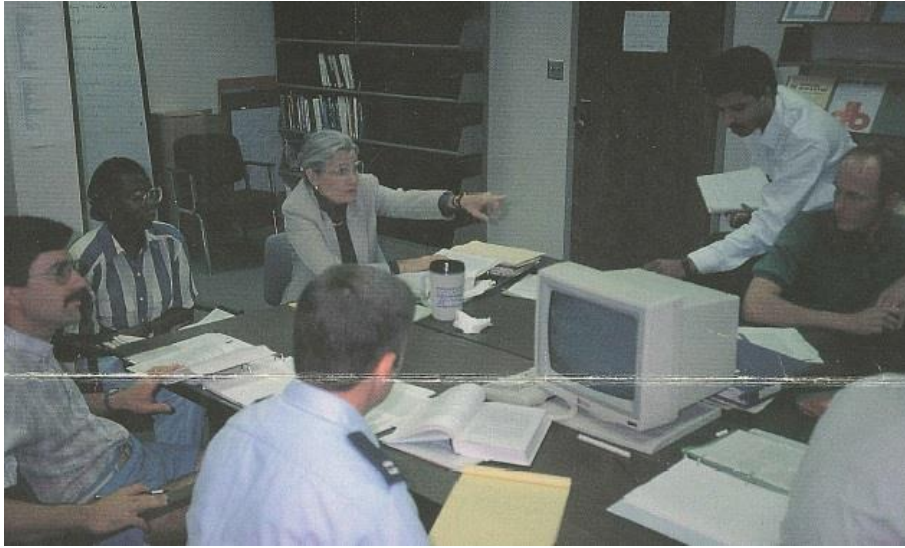


# The CIS faculty, 1988



Austin Melton was travelling that day and is missing from this photo.





- Departmental research in databases, distributed systems, and programming semantics surged forwards in the late 1980s. (Beth and her database group are shown at left.)
- In 1989, Kaliappa (Ravi) Ravindran was hired as an Asst. Prof. in operating systems. Six years later, Ravi moved to City College of New York, where he now resides.
- Virg scraped together funding for a software-support staff. Harvard Townsend, a CIS MS grad, was systems manager from 1983 through 1992. Harvard then became the head of KSU's Computing and Network Services Office and then the Chief IT Officer. In 2012 he moved to Illinois to work at Wheaton College with his wife, Dana.



Ravi

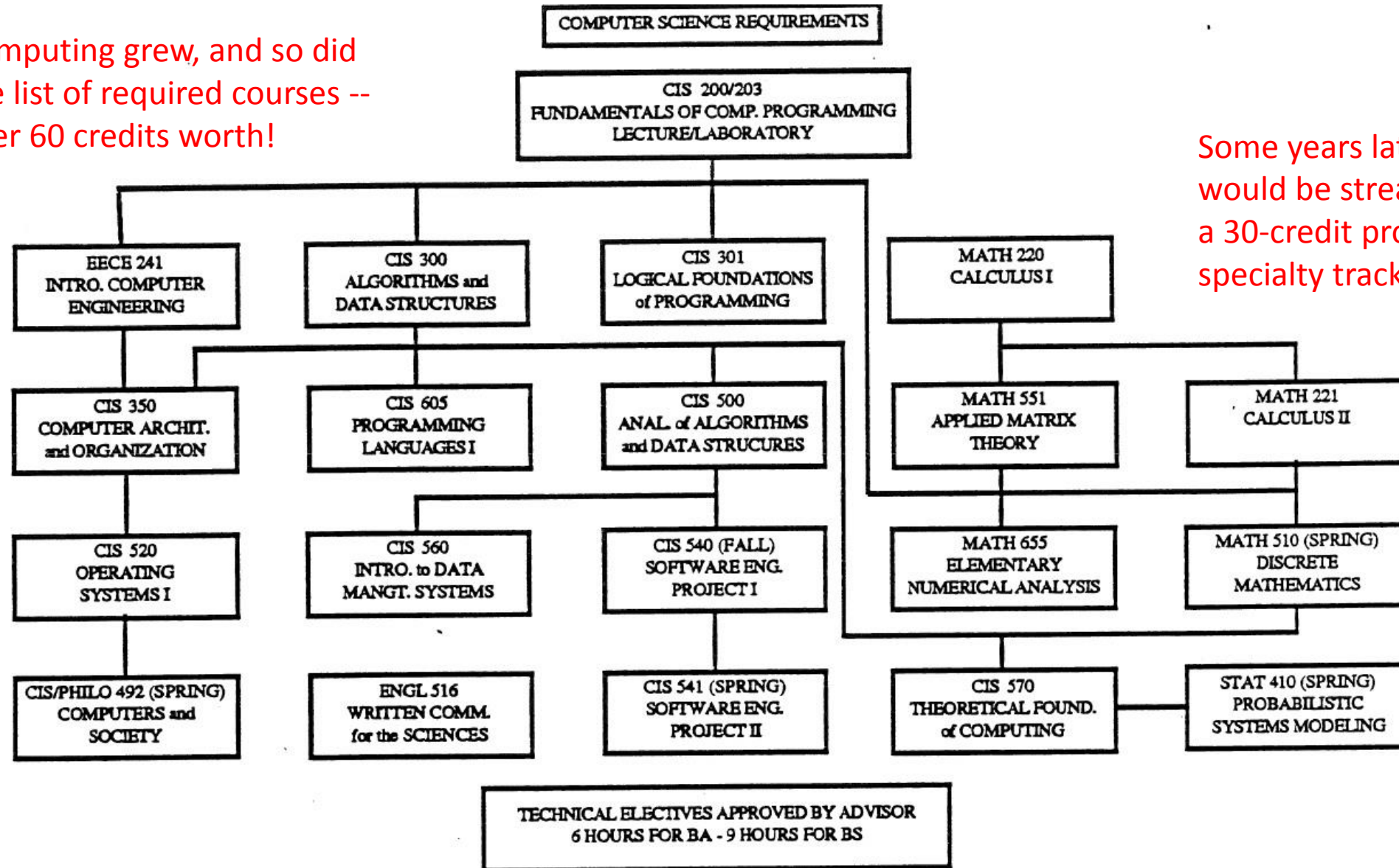


Harvard

# Bachelor Degree Requirements, 1990

Computing grew, and so did  
the list of required courses --  
over 60 credits worth!

Some years later, the B.S.  
would be streamlined into  
a 30-credit program with  
specialty tracks.



# M.S. requirements, 1995

The M.S. degree requires a minimum of 30 credit hours of graduate level coursework; up to 10 hours can be transferred from other accredited graduate programs. Each new student is assigned a faculty member to serve as an *Academic Advisor*. The Academic Advisor helps the student select courses and reviews the student's progress until a Major Professor is selected. The coursework must include one course from each of the following areas:

- Implementation:** CIS606 (translator design), 620 (operating systems practice), 630 (AI programming techniques), 636 (computer graphics), and 690 (implementation project).
- Languages:** CIS705 (programming language design), 707 (algebraic semantics), and 771 (specification and verification).
- Systems:** CIS720 (operating systems), 721 (real-time systems), and 725 (networks).
- Structures:** CIS730 (artificial intelligence), 740 (software engineering), and 761 (database systems).
- Theory:** CIS770 (formal language theory) and 775 (analysis of algorithms).
- Specialization:** Any course numbered CIS8xx or CIS9xx except seminar, projects and M.S. research courses.

The student must receive a grade of "B" or better for each course used to satisfy the above requirements.

In addition, the student must complete CIS897 (seminar in computer science). This one-credit course is offered on a credit/no credit basis.

The Program Option can take one of three forms:

**Non-thesis-report Option:** Write a major paper, for example, as part of a CIS8xx course. This option requires 33 credit hours for a M.S. degree.

**Report Option:** Undertake a project that culminates in a written report; 2 credit hours for CIS898 are awarded for the work. Project work from CIS690 can be applied to the project, subject to the approval of the Major Professor. This option requires 30 credit hours for a M.S. degree.

**Thesis Option:** Perform original research that culminates in a written thesis; 6 credit hours for CIS899 can be awarded for the work. This option requires 30 credit hours for a M.S. degree.

This version of the M.S. requirements has remained stable over the decades.



# PhD requirements, 1990

## 4.1. The Program of Study

4.1a. You must meet with the members of your supervisory committee and formulate a *Program of Study*. (Obtain the Program of Study forms from the Graduate School.)

4.1b. The Program of Study contains the following information:

- 4.1b.i. major professor (that is, the research advisor)
- 4.1b.ii. members of the supervisory committee
- 4.1b.iii. general area of research
- 4.1b.iv. three preliminary examination areas (See Paragraph 4.2c.)
- 4.1b.v. all graduate course credits (at least 90 hours)

4.1c. The graduate course credits must include the following:

- 4.1c.i. The Core Courses stated in Paragraph 2d. Equivalent courses taken at another institution are acceptable. The Graduate Studies Committee reserves the right to determine equivalency. Alternatively, Core Courses can be omitted if you elect to take and pass the comprehensive exam. (See Paragraph 4.2b.)
- 4.1c.ii. At least 24 hours of course credit at Kansas State University beyond the Master's degree.
- 4.1c.iii. At least 30 hours of PhD research.
- 4.1c.iv. At least 9 hours of CMPSC900-level courses.
- 4.1c.v. One or more courses in theoretical or foundational topics that support your chosen direction of research. The supervisory committee approves the choice of courses for this requirement.
- 4.1c.vi. Any additional requirements instituted by your supervisory committee. (An example: English 516, "Written Communication for Scientists," is sometimes required for additional writing experience.)

## 4.2. The Preliminary Exams

4.2a. You must also pass preliminary exams. The exams consist of 4 written exams and one oral exam. *By the end of your second year of studies, you must have passed the preliminary exams.*

4.2b. The first preliminary exam is a *comprehensive exam* over the Core Courses (see Paragraph 2d). *This exam is waived if you complete the Core Courses (either at Kansas State University or at your previous school) with at least a "B" in each course and with a grade point average of 3.50 or greater for all of the courses.* There is no reading list for the comprehensive exam. The exam covers the content of the core

courses. Syllabi for the Core Courses are available from the department's Graduate Studies secretary. By the end of your second year of studies, you must have passed the comprehensive exam or satisfied the core course requirements.

4.2c. You must pass one exam from each of the following three areas:

Software Systems:

Compilers & Interpreters,  
Distributed Systems,  
Operating Systems,  
Software Engineering

Knowledge and Information Systems:

Artificial Intelligence,  
Data Base Systems,  
Office Automation

Theory:

Analysis of Algorithms,  
Automata & Computability,  
Programming Language Semantics,  
Specification & Verification

4.2d. The exam areas are defined by reading lists. (See paragraph 4.2e.) You must prepare for the topics specified in the reading lists. The general scope of each area will align with a primary graduate course in each area; however, the reading lists will include some items that go beyond the primary graduate course.

4.2e. Preliminary examinations can be scheduled for either September or January. The reading lists will be available from the Graduate Studies Secretary the preceding April 1st or October 1st. You must make a written request to the Graduate Studies Committee by April 15th or October 15th to schedule your exams for the next September or January.

4.2f. The Graduate Studies Committee specifies the exam formats. Usually, the preliminary exams are 4 hours each, scheduled for 3 successive Saturday mornings. (The comprehensive exam is a five hour, closed-book exam.)

4.2g. The preliminary exams are graded by the respective faculty members who prepared them. An exam may be graded as "pass," "fail," or "conditional pass" subject to further work. If exactly one of the three exams is graded "fail," you must retake and pass that exam the next time that exams are offered. If two or more of the exams are graded "fail," you must retake and pass exams in the same three areas the next time that exams are offered. You are allowed only one retake of an exam. If you fail an exam twice, you must leave the PhD program. (The comprehensive exam can be retaken only once. If the comprehensive exam is failed twice, you must leave the PhD program.)

**The prelim exams were weakened some years later so that students could "opt out" of prelims by obtaining a "B+ or better" grade in the grad course associated with an exam area. This change was made because many students took too long to undertake the exams.**

# Visiting Professor Olivier Danvy, 1991-93



- The programming-semantics group reached critical mass with the arrival of Olivier Danvy from Univ. Copenhagen. (Olivier's wife, Karoline, was a student at KSU at this same time.) Olivier was a world leader in partial-evaluation theory and a founder of the ACM PEPM Conference series. He published prolifically and was a co-Investigator on two NSF grants while at KSU.
- Olivier's enthusiasm and work ethic was contagious, and his efforts at attracting visitors and organizing meetings at KSU placed the semantics group into prime visibility at the international level. He collaborated widely and enthusiastically.
- He taught at both the undergrad and grad levels and helped train two PhD students who later became CS faculty: Anindya Banerjee and John Hatcliff.
- In 1993, Olivier moved to Carnegie-Mellon Univ. and then to Aarhus Univ. (Denmark), where he is now a Professor. Olivier was cited in the journal *Nature* as "the most thanked person in computer science."

Olivier at the Dagstuhl (Germany) conference center, 1995. John Hatcliff is seen at the left.



# An Olivier-organized workshop, KSU, 1991

**Functional Programming and Semantics of Programming Languages**  
**Olivier Danvy and David Schmidt, Program Coordinators**

The following program is preliminary. The talks will generally last from 8:30 a.m. - 1:30 p.m. daily.

**\*\*\*\*\* Monday, August 26, 1991, KSU Union Room 207 \*\*\*\*\***

Flemming Nielson, University of Aarhus, Denmark, "On the Complexity of Static Program Analysis"

Hanne Riis Nielson, University of Aarhus, Denmark, "Techniques for Transforming Functional Programs"

**\*\*\*\*\* Monday, September 2, 1991, Nichols Hall 122 \*\*\*\*\***

John O'Donnell, University of Glasgow, Scotland, "Calculating Parallel Algorithms"

Cordelia Hall, University of Glasgow, Scotland, "How to Persuade a Typechecker to do Strictness Analysis"

Kyung-Goo Doh, Kansas State University, "Extraction of Strong Typing Laws from Action Semantics Definitions"

Olivier Danvy, Kansas State University, "For a Better Support of Static Data Flow"

**\*\*\*\*\* Tuesday, September 3, 1991, KSU Union Room 207 \*\*\*\*\***

Daniel Le Metayer, University of Rennes, France, "Parallel Implementation of Functional Languages"

Pascal Fradet, University of Rennes, France, "Syntactic Detection of Single-Threading using Continuations"

Thomas Jensen, Imperial College, England, "Abstract Interpretation and Programming Logics"

Karoline Malmkjaer, Kansas State University, "On Static Properties of Specialized Programs"



**\*\*\*\*\* Wednesday, September 4, 1991, KSU Union Room 207 \*\*\*\*\***

Peter Sestoft, University of Copenhagen, Denmark, "Evaluation Order Analysis for Lazy Data Structures"

Maria Zamfir-Bleyberg, Kansas State University, "Using And/Or Algebraic Theories in Concurrency"

Masaaki Mizuno and David Schmidt, Kansas State University, "A Security Flow Control Algorithm and Its Denotational Semantics-based Correctness Proof"

**\*\*\*\*\* Thursday, September 5, 1991, KSU Union Room 212 \*\*\*\*\***

Erik Meijer, University of Nijmegen, the Netherlands, "More Advice on Proving Compilers Correct: Improve Correct Compilers"

David Schmidt, Kansas State University, "Action Semantics-based Language Design"

Olivier Danvy, Kansas State University, "Free Wheeling between Direct and Continuation-Passing Styles"



# Beth Unger gets promoted

- In 1986, Beth co-founded the ACM Symposium on Applied Computing, which operates to this day. From 1983 to 1995, she supervised 18 PhD students and countless MS students to completion.
- In 1990, Beth was “promoted out of CIS” and became Associate Dean of the Graduate School, a post she held till 1994.
- In 1994, Beth was “promoted to Anderson Hall” and became Vice Provost of Academic Services & Technology as well as Dean of Continuing Education --- her job was to wire the campus and make its resources available to distance learners.
- Beth oversaw the installation of high-speed internet across campus, winning a “Most Wired” award from Wired Magazine. She also helped develop K-State On-Line. She created the Information Technology Assistance Center (iTAC), which is the first point of contact for students who are using University computing facilities.
- Beth held her Provost/Dean posts till her retirement in 2007.



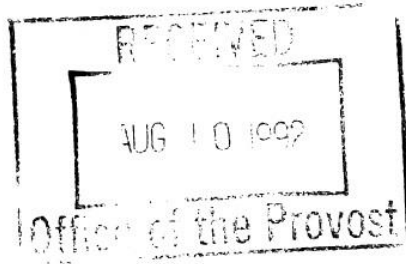
# Accreditation of B.S. degree by CSAB, 1992



COMPUTING SCIENCES ACCREDITATION BOARD, INC.

Suite 209, Two Landmark Square-Stamford, CT 06901 • Tel (203) 975-1 CSAC Final Statement

Kansas State University



Provost James Coffman  
Kansas State University  
Anderson Hall  
Manhattan, KS 66506

Dear Provost Coffman:

The Computer Science Accreditation Commission (CSAC) of the (CSAB) met on June 26-28, 1992, to act on the accreditation academic year. The computer science program that you subn accredited for a period of 3 years (3V). Details concerning the confidential final statement are enclosed.

## IV. SUMMARY

The program leading to the B.S. in Computer Science at Kansas State University has good students and a dedicated faculty. The quality of instruction appears to be good and students believe they are receiving a good education. The department has been very responsive to the deficiencies and concerns expressed in the Preliminary Statement for Review and Comment. As a result, the program now satisfies CSAC/CSAB criteria. Nevertheless, there are some areas of concern that may affect the stability, overall quality, or future accreditability of the program. These include:

1. The continued effectiveness of the program after the revisions in course content for CIS 200, 300, and 500.
2. The effectiveness of the advising system in the selection of proper science courses and in the monitoring to ensure the proper prerequisite courses are taken for computer science advanced courses and electives.
3. The availability of institutional funds to support faculty travel and development.
4. The availability of budgeted institutional funds to support the purchase and maintenance of computer equipment and software.

While these concerns do not represent deficiencies relative to the *Criteria* at this time, they will be of particular interest to the next CSAC evaluation team.

- CSAB was a relatively new agency, and the Department was one of the first to obtain accreditation. One year's worth of record keeping of course notes, assignments, etc., was required, taxing the front-office staff. Accreditation was used a "tool" by Virg to demonstrate to Central Administration that the Department was significantly underfunded. (Alas, it didn't help much.)
- As a result of the CSAB report, the Department augmented its advising team, giving Joe Campbell more help. In future years, all of CIS200, 300, and 500 (now 501) were rebuilt.
- The Department has been continuously accredited since 1992, first by CSAB and now its successor, ABET.
- Virg continued to lobby for resources, and there were three new faculty hires:



# Gurdip Singh



PhD student



Asst. Professor



Professor  
and Dept.  
Head

- Gurdip came to KSU in 1991 after completing his degree at SUNY Stony Brook, researching operating systems. He was a recipient of one of the NSF's newly instituted Career Awards.
- While at KSU, he created the *Pervasive Sensor Network Laboratory (PerSNL)* for studying embedded systems and sensor networks. Through the lab, Gurdip supervised many MS and PhD graduates. He won the Engineering Research Award in 2007.
- Later in his career, Gurdip took over as CIS Department Head, a post he held from 2009 through 2014. Gurdip did a great job maintaining the quality of the Department's programs and preserving the positive work atmosphere.
- In 2014, Gurdip moved to the NSF as a program manager, and in 2016 he took a post as Associate Dean at Syracuse University.
- Gurdip was well liked for his work ethic, low-key manner, and easy sense of humor.

# Jan Chomicki



- From Poland, Jan studied at Rutgers and did a post-doc at UNC Chapel Hill before coming to KSU in 1993. At that time and since, Jan was/is a leader in temporal database research, maintaining the highest standards in his work. Jan trained one of the Department's best PhD grads, David Toman, who himself became a Professor at Univ. Waterloo.
- Jan was known for his economical style of presentation, his high standards and his strong beliefs. In 1998, he moved to SUNY Buffalo, where he is a Professor.



David Toman

# Alley (Allen) Stoughton

- Allen Stoughton joined the programming-semantics group in 1993, after studying at UCLA and Edinburgh and working at Chalmers Univ. (Sweden) and Univ. of Sussex (England). Allen was a significant contributor to the group's intellectual atmosphere as well as to the Departmental social atmosphere via his "Friday-after-classes" gettogethers, which continued for well over a decade.
- Allen taught undergrad and grad courses in programming languages, semantics, and automata theory, creating from these courses two widely used verification tools, *Porgi* and *Forlan*. Allen steadily published and helped generate NSF- and ONR-funded research.



Allen, 1997



Masaaki and Allen participate in the "CIS Alternative Tour":  
[people.cs.ksu.edu/~schmidt/alternative.tour/part1.html](http://people.cs.ksu.edu/~schmidt/alternative.tour/part1.html)





Alley, 2010

In 2008, Allen became Alley Stoughton and augmented her academic work by efforts to educate the community and university about the problems faced by the LGBT-community

Alley left KSU in 2010 and subsequently took a position at MIT Lincoln Labs. Alley now works at IMDEA Software Institute, Madrid, dividing time between there and Boston.

# A move to the Engineering College

By the late 1980s, Virg Wallentine became convinced that the CIS Department would never get from Central Administration the resources it needed to grow to a “critical mass”: the Arts and Sciences (A&S) College held over 20 departments and the largest ones “called the shots”. There appeared to be two possible solutions:

- (i) Merge CIS with another department/group and make it huge;
- (ii) Move CIS to another College of more equally-sized departments.

Virg tried Option (i) first, and convinced President Wefald to propose a merger of CIS with the computer engineering portion of the Electrical and Computer Engineering Dept. Wefald’s “reorganization proposal” (which also proposed to disband the Architecture College!) was met with hostility from several quarters and was abandoned.

Option (ii) came to the forefront when the new A&S Dean, Peter Nicholls, proposed to cut CIS’s budget and reduce its faculty to cover shortfalls in other A&S departments. In the fall of 1990, Virg started the push, and a proposal followed:

## Issues Surrounding a Possible Administrative Move of CIS to Engineering

### September, 1991

For several years KSU's central administration has been suggesting that, in one form or another, CIS should move to the College of Engineering. **The faculty of CIS feel it is now time to discuss the issues surrounding making the CIS Department a full-fledged department in the College of Engineering.**

In general, we feel the change of administrative structure would be beneficial for CIS for the following reasons.

1. We believe there will be better coordination of engineering and CIS research and development projects; this will produce a more competitive faculty for extramural funding.
2. We can achieve better integration of undergraduate instruction of computing concepts in Engineering disciplines, while continuing the service computing courses for the entire University.
3. Better coordination of computer science, information systems, computer engineering, and software engineering curricula will be possible.
4. In Engineering we expect to receive better support for computing equipment and software through industrial grants and through the Engineering Equipment Fee. A base OOE budget from Arts and Sciences has never (since the formation of the Department) been allocated to convert us from a "pencil and paper" discipline to the computational laboratory discipline we are.
5. Much of industry views the computing sciences as engineering disciplines and we believe that improved support from industry for research, development, and instruction would be forthcoming from the changed perception of industry. Further, the Dean of Engineering has excellent connections in industry and this can only be positive for CIS. In the past, all of this work has been done by the CIS Department Head and a Dean is more effective.
6. The College of Engineering would show improved support and respect for the design and engineering para-



- Not surprisingly, Dean Nicholls pushed back, realizing he would lose a significant faculty, along with the attached resources. Multiple A&S department heads wrote public letters of opposition to the move. There was also resistance from some quarters in the Engineering College, who feared that CIS was planning their move so to "raid" Engg. College resources. But Engg. Dean Don Rathbone supported the move, knowing a good thing when he saw it.
- The intervention of Provost James Coffman was the key to negotiating the delicate and complex conditions for the move:



## College of Arts and Sciences

Office of the Dean  
Eisenhower Hall  
Manhattan, Kansas 66506-1005  
913-532-6900

August 24, 1992

TO: James Coffman  
FROM: Peter Nicholls *P.N.*  
RE: Computer Science Funding

Virg Wallentine and I have sent over to you a chart showing expenditures in the CIS department over the last several years. While we are in agreement over these figures, we would probably not agree on the size of the base budget transfer that should accompany the department were it to be moved from Arts and Sciences to Engineering. The purpose of this note is to indicate what I feel would be a fair level of budget transfer - one which would take into account resources recently reallocated to CIS, the CIS share of our College deficit, and teaching needs in CIS compared to the rest of the College.

I am not going to quibble over OOE allocations and equipment supplements. Over the last 5 years the CIS OOE allocation has averaged \$44,269 and this amount should move with them. Their equipment supplements from this office have averaged \$24,500 and I would agree to a transfer of this amount - even though the CIS department would presumably benefit by two or three times this amount ~~the~~ from the engineering equipment fee.

The personnel budget (student, GTA, Faculty, and classified) is a different matter. The following table shows increases in personnel totals for CIS over



Office of the Provost

Anderson Hall  
Manhattan, Kansas 66506-0113  
913-532-6224

Virgil Wallentine  
Head  
Dept of Comp. & Info. Sci.  
Nichols Hall

F16 A2

2302

September 9, 1992

TO: Deans, Directors & Department Heads  
FROM: James R. Coffman, Provost *JRC*  
RE: Computing and Information Sciences

The CIS Hearing Panel is meeting in the Anderson Hall Conference Room (116) on Wednesday, September 23, 1992, from 10:30 a.m. to 12:00 p.m. for the purpose of continued deliberation and consideration of the proposed move of CIS from Arts and Sciences to Engineering. At that time, the panel will listen to and consider further input from administrators and faculty.

Individuals planning to make comments should contact Lavon Wells at 532-6224 to schedule a time. The presentations will be limited to 5 minutes. Presenters should bring, or send in advance, eight copies of a written summary of their comments, for review by the hearing panel.

Your assistance in notifying interested faculty of this opportunity is appreciated.

Best regards.

Coffman  
wisely  
scheduled a  
public forum  
where  
everyone  
could have  
their say  
before he  
made his  
decision.



Office of the Provost

Anderson Hall  
Manhattan, Kansas 66506-0113  
913-532-6224

September 24, 1992

Dr. Jon Wefald  
President  
Kansas State University  
Anderson Hall  
Campus

Dear President Wefald:

By this letter and the attached document of guiding principles, I am recommending the transfer of the Department of Computing and Information Sciences from the College of Arts and Sciences to the College of Engineering, effective January 1, 1993.

I believe this move, which has the unanimous support of the hearing panel, is in the best interest of the departmental programs and the university. The synergy and complementarity achieved will, in my view, strengthen already good programs and allow for more productive use of resources in this cost intensive area.

All of the required procedures within the university have been completed prior to this recommendation. With your approval, it can now be forwarded to the Board of Regents.

Thank you. Best personal regards.

Yours truly,

*Jon W. Wefald*



Office of the President

Anderson Hall  
Manhattan, Kansas 66506-0112  
913-532-6221

September 25, 1992

Dr. Jim Coffman  
Provost  
Anderson Hall  
UNIVERSITY

Dear Jim:

I am pleased to accept your recommendation that we transfer the Department of Computing and Information Sciences from the College of Arts and Sciences to the College of Engineering effective January 1, 1993.

I want to commend you, Dean Rathbone, Dean Nicholls and the Department Head, Virgil Wallentine, for the harmonious and cooperative way that you have all worked together over the past couple of years to bring this recommendation to fruition. This is clearly a case where everyone wins, both colleges are stronger and the Department of Computing and Information Sciences will be better positioned to participate in the latest advances in research and teaching in this area.

I want to thank all of you for your hard work.

Sincerely,

*Jon Wefald*  
Jon Wefald  
President



Virg (and Beth Unger) knocked themselves out to make the move happen --- a huge feat that took big pieces of their lives. The action saved the Department from downsizing. What were the other consequences?

- (i) The CIS Department now belonged to a college of about a dozen departments, all of which were roughly the same size as CIS.
- (ii) The Engineering College placed high value on extramural funding, but no distinction was made as to funding “quality” (e.g., an NSF grant versus, say, a Burger King consulting contract) --- money was money, after all. Scholarly work became a little less important.
- (iii) CIS was given a significant degree of independence in planning its undergrad curricula (which still included a B.A. degree) as well as managing its own funds. Its collection of Graduate Teaching Assts. was preserved, as were its service courses.
- (iv) There began a subtle shift of culture in the Department from doing science/theory to doing engineering/practice.

During the entire process, Virg isolated and protected the CIS faculty from the stresses related to the transition --- a major accomplishment!

# Michael Huth was hired in 1996

- Michael did a PhD at Tulane and postdocs at KSU, Imperial College (London) and Univ. Birmingham before returning to KSU. He was an energetic teacher, collaborator, and researcher. His gumbo parties were famous, and he played a mean alto sax.
- His text, *Logic in Computer Science* (Cambridge, 2004), is one of the standards.
- Michael was happy in Kansas, but when his lawyer missed a green-card deadline in 2001, he returned to Imperial College, where he is now a Professor.



Professor Doctor Huth



Michael, 1993



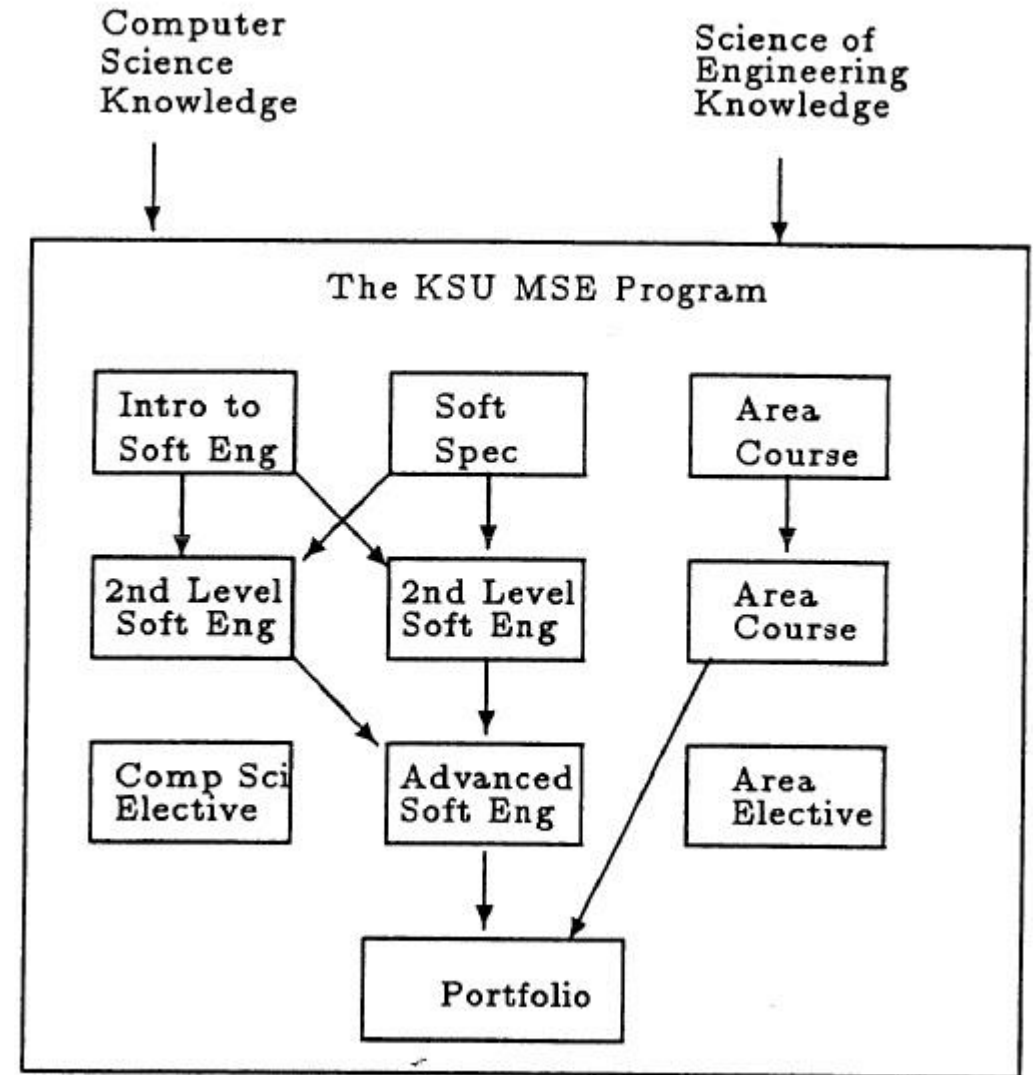
Michael and the KSU semantics group at an MFPS meeting.

# Master of Software Engineering (MSE)

The Department received a lot of grad applications from people who wanted to “retool” and do applications/software engineering work. In 1995, Bill Hankley, Dave Gustafson, and Virg formulated a degree program for these people, the MSE, and obtained approval from the Graduate School.

The degree was meant to accommodate working students who might study remotely. It also was intended to move the Department a bit closer to “Engineering College culture” (although questions arose regarding the “licensing/certification” of the software engineers).

The program has remained in place to the present day, modified to include core CS MS courses.






# “Wayback” to the World Wide Web in 1997

[https://web.archive.org/web/19970701000000\\*/http://www.cis.ksu.edu](https://web.archive.org/web/19970701000000*/http://www.cis.ksu.edu)


Wayback Machine 380 captures 4 Feb 97 - 17 Jul 16

text-only version of this page




**The Department of Computing and Information Sciences**  
Kansas State University

Admissions Advising Tours CIS110 Computer Systems Catalogue

 **People**  
Faculty  
Staff  
Students  
Alumni


**Programs**  
Undergraduate  
Graduate  
Research  
Summer on Campus  
Outreach

**Welcome** to the *Department of Computing and Information Sciences*. Through both on-campus and off-campus programs, the Department offers baccalaureate degrees in computer science and information systems, master's degrees in computer science and software engineering, and the doctorate in computer science. Research emphases include programming languages, parallel and distributed systems, software engineering, and data bases.



doctorate student [Sergey Kotov](#), a member of [Programming Language Semantics](#) research group, explains the intricacies of his dissertation to fellow students

New and Noteworthy  
[Distinguished Speaker Series](#)  
[Mobile Robotics](#)  
[5th KSU Programming Challenge](#)  
[Ethics and Computing](#)  
[Employment Opportunities](#)  
Resources and Referrals  
[Departmental Reports](#)  
[Internet Resources](#)

Home Search Help Comments 

The World Wide Web became available to the Department in 1995, and the Department's web site quickly followed. Here is a copy of the Department's home page from February 4, 1997, courtesy of the Wayback Machine at ***archive.org/web*** You can check out the page and click on all the links, which are alive. You'll see a snapshot of the Department in early 1997!

# The CIS front office staff

An organization functions only because its administrative staff makes things happen. The CIS Department was fortunate to have many hard-working, likable people who did the job. Here are several:



Sandy Randel was office manager from 1989 through 1993. Twice she was a finalist for KSU classified employee of the year.



Angie Taylor was Sandy's successor and continued the outstanding work. Angie was particularly appreciated by the Summer on Campus people, who benefitted from her hard work.

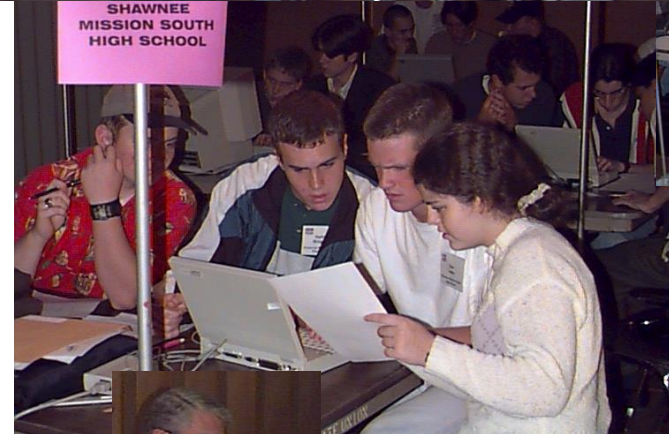


Jan Herndon started as bookkeeper in 1995 and stayed on the job for 20 years, retiring in 2015. Jan oversaw and managed the massive growth in research accounts, putting in many long hours to keep the books balanced.



# High-school programming contests

- In 1990, Rod Howell and Dave Gustafson initiated the Department's annual high-school programming contest. A typical contest includes students from several dozen high schools divided into as many as 100 teams --- a massive undertaking to manage!
- The contests are meant as a publicity tool for the Department and College and have indeed recruited many undergrads.
- You can review a sample contest (teams, problems, winners) at the *Wayback machine* at *archive.org*. The pictures here are from the 1996 contest.

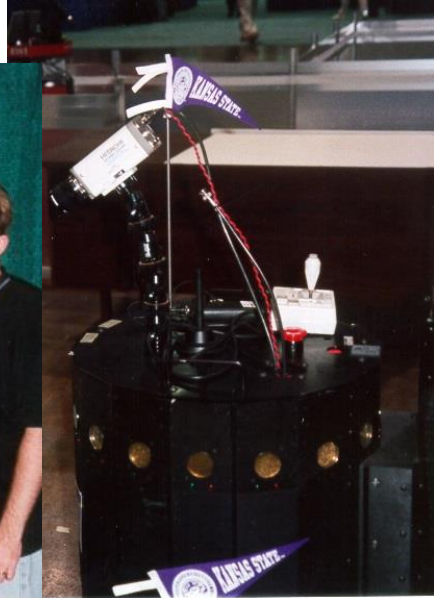




# Robotics team



From AAI 1997



- Perhaps the Department's biggest public relations coup was the appearance of Dave Gustafson's Robotics Team on Alan Alda's 1996 PBS special, "Scientific American's New Frontiers" --- the Team's "Slick Willie" robot finished second in the national AAI competition, which Alda hosted! The accomplishment was so impressive that Dave was asked to write a summary of the robot's software architecture for the spring 1997 issue of *Artificial Intelligence*.
- Over a period of years, Dave had built the team (and its code base) into a sophisticated, reliable unit that regularly placed highly at the annual competitions. In 1997, the team won first place --- no other competitor was even close.
- The robotics team regroups each year, with new undergrads entering the mix, and it remains competitive.

# Matt Dwyer

- Matt came to KSU in 1995 from the Univ. Massachusetts, where he did his PhD. His interests in software engineering and data-flow-based program analysis made him a good fit for the Department's software engineering and programming-semantics groups.
- Matt was a co-founder of the Santos lab and supervised one of its best students, Corina Pasareanu. He published prolifically and was a co-developer with John Hatcliff of the Bandera tool suite.
- Matt stayed at KSU until 2004, when he moved to an endowed chair at the University of Nebraska and ultimately became department head.



# Mitch Neilsen



- Mitch comes from Nebraska. He did an MS in math, and for his PhD he worked with Masaaki Mizuno. The pair generated a series of highly regarded papers on synchronization algorithms that led to two NSF grants and a research collaboration with the IRISA research lab in France. After his PhD, Mitch moved to Oklahoma State University. He returned to KSU in 1996 to work in the distributed-systems group. Mitch's career straddles "Part 1" and "Part 2" of the CIS Nichols Hall story.
- Mitch has been active in technology transfer and outreach, bringing to campus multiple industrial grants and contracts. In 2010 Mitch led a CIS team that won a five-year *NSF Grant: GK-12 STEM Fellowship Program: Infusing System Design and Sensor Technology in Education*. The project fostered development of computing skills at school levels 3-12 via teacher training and student activities.
- Mitch is now a Professor and leads the Graduate Student recruiting program.



# Research self study, 1997

- In 1997, Central Administration conducted a review of all graduate programs, comparing their quality to others via national-level rankings. Not surprisingly, all of KSU's programs fell at middle rank (including CIS, but CIS ranked 22<sup>nd</sup> in the US in the "most improved" category of CS departments!).
- Each department prepared a summary document, and the one for CIS gives a good snapshot of the state of the Department in the mid-1990s.

## 3.1 Master of Software Engineering Program

The MSE program distinguishes KSU as being one of a select few universities to offer an MSE degree. Inquiries and applications have come from all regions of the country and the world. Several students who would otherwise have studied Software Engineering in our MS program have switched to our MSE program; however, the majority of applications have come from professionals seeking to enhance their computing expertise and from students with degrees in other fields.

## 3.2 Master of Science Program

The MS program has produced an average of 30.8 graduates over each of the past five years. These graduates account for over half of the graduate degrees awarded by the College of Engineering each year. Most of these graduates are now employed in the computing industry, and a few are in PhD programs. Furthermore, the quality of these students has continued to improve due to ever stricter admissions standards. For example,

## 3.3 PhD program

The PhD program has produced an average of 3.6 graduates over each of the past five years. Most of these currently hold either postdoctoral or tenure-track positions at research universities; others are working in industrial or defense positions (see Table 1). The quality of these graduates is closely tied to the quality of the faculty research programs, which we will discuss shortly.

Our most pressing concern regarding our PhD program is the recent decline in the number of students. There are several reasons for this decline. First, in the recent booming job markets, in particular for computer programmers, engineers, and scientists, graduates

**At the time of writing, the Department had three main research groups: programming semantics, distributed systems, and software engineering. There were also individual faculty conducting research in database systems, algorithms, and artificial intelligence. But it was clear that the Department was short handed....**

The programming languages group has been active since 1996, and currently consists of three faculty members (one Full Professor, one Associate Professor, and one Assistant Professor). The group is internationally recognized. It has hosted extended-term visitors from the Universities of Rennes, Copenhagen, and Glasgow, as well as short term visitors from the Universities of Aarhus and Darmstadt, Carnegie Mellon University, and Oklahoma State University. It is a participant in the NSF Atlantique exchange program. Group members are currently collaborating with researchers at the Universität des Saarlandes, Imperial College, and the University of Birmingham. Members of the group have been invited participants at numerous workshops, and have been funded visitors (by the host institutions) for one month or longer to the Universities of Copenhagen, Aarhus, Glasgow, Edinburgh, Ecole Normale Supérieure, and Darmstadt. The group has an extensive publications record, and group members have authored three books and edited

The distributed and real-time systems group consists of five faculty members (one Full Professor, three Associate Professors, and one Assistant Professor). The group has research links with INRIA, IRISA, University of Rennes, Ohio State University, Hiroshima University, and Bell Communications Research. Two group members have served as program committee members for a total of three conferences, and one of these members has served as the conference stream chair of the 1991 ACM Symposium on Applied Computing. Another participated in the development of the SAE J1939 standard for in-vehicle networking and the development of the NMEA (National Marine Electronics Association)

The software engineering group consists of three faculty members (two Full Professors and one Assistant Professor). It has links with researchers at Oklahoma State University, and the Universities of Massachusetts and Hawaii. The group was instrumental in the founding of the grubstake group, an internationally-known group of researchers in the software measures area. The publications of the grubstake group are cited by most researchers in software measurement. One of the group members was recently awarded an NSF Career Award of \$200,000.



# Visiting Professor, Stefan Sokolowski



- In 1997, Virg found money for a 2-year visiting professor position, and Stefan took the job! Stefan was a researcher at the Polish national research lab in Gdansk and was an old friend of the semantics group, having worked in Edinburgh in the 1980s with Dave Schmidt and Allen Stoughton. Stefan specialized in programming logics and applications of topology to concurrency, so he was a good fit for research.
- Stefan taught the undergrad theory courses and was surprised to find that the students knew so little math (and the students were surprised that Stefan demanded that they know math). Stefan's assessment of the data-structures course generated a series of seminars about the undergrad core courses, and his suggestions led to the modern-day formats of CS200/300/501/.../575.
- Stefan loved to hike and climb. When he returned to Poland, he had a serious ice-climbing accident that set him back for some time. Now, he is teaching again and doing well.



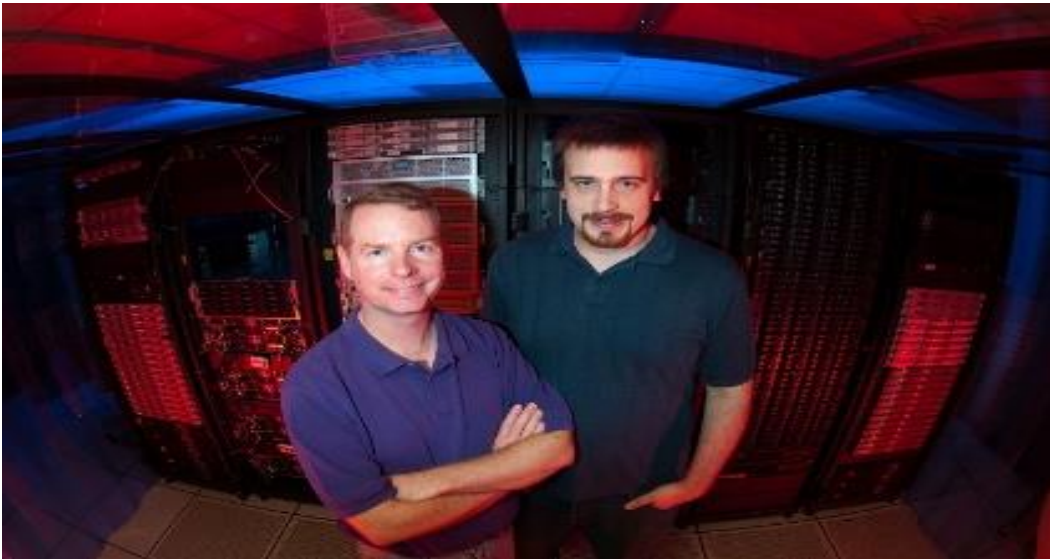
# Dan Andresen



- A Nebraska native, Dan finished his PhD at UC Santa Barbara and came to KSU immediately thereafter, in fall 1997. His interests in hardware, distributed computing, and Web technology made him a great fit for the Department.
- Dan has been a leader in establishing interdepartmental and interdisciplinary research projects.
- From his arrival, Dan invested much time revitalizing the student ACM club. He supported undergrad activities (tailgate parties, LAN nights, regional programming meets) to help students feel part of the “Departmental family”. Much of Dan’s story belongs to “Nichols Hall, Part 2.”
- Dan’s expertise in hardware made him the natural person to oversee the Department’s computing facilities, and he has been the manager of the Department’s Beocat system since its arrival to KSU:

# Beocat

Beocat is a Beowolf-based computer cluster of 175 nodes, 2000 CPUs, and 11TB of RAM, all connected with a high-speed, low-latency network. It supports campus-wide, high-performance-computing-based research.



Dan Andresen and Adam Tygart manage Beocat on their “\$0 budget.”

## *Good things come in large boxes!*

Executives from Wal-Mart and NCR joined university officials at a ribbon-cutting ceremony on September 15 to mark the installation of a \$5 million gift in kind to Kansas State University.

Left to right are Susan Chambers, vice president for information systems for Wal-Mart; Jon Wefald, president of Kansas State University; Mike Woods, account executive for NCR; Jim Coffman, university provost; Virgil Wallentine, head of the Department of Computing and Information Sciences in the College of Engineering and Terry King, dean of the College of Engineering.

The NCR teradata system installed in K-State's Nichols Hall is larger than many used by major corporations. It is equipped with 1.7 terabytes of disk storage (one terabyte is equivalent to 250 million pages of text) and NCR teradata software, the core component used in Wal-Mart's data warehouse of 101 terabytes, believed to be the largest commercial database in the world.

Wallentine said that by learning to program and manage a large parallel computing system, K-State students will see firsthand the opportunities and critical challenges associated with very large databases. “As a result, K-State graduates will be prepared to enter the rapidly expanding job market with extensive, practical experience,” he said.



Beocat was donated to CIS by Walmart in 2000



# Instructors Mike Miller and Bill Shea



Mike was listed as a CIS faculty member since the Department's inception in 1971, but he moved to Nichols Hall only in 1998, when his position at the KSU Computing Center was discontinued. Mike took on CIS10X and advising duties and was well liked during his tenure.



Bill was a KSU CS MS grad, a retired army Major, and a minister --- a perfect combination for being a CIS Instructor/Advisor! Bill managed the CIS10X and 200 courses during his years in the Department. On his retirement, Bill sharpened his fly-fishing skills with his granddaughters.



# Myron and Maarten retire

The Department reached a level of “maturity” in the late 1990’s, as signified by the first retirements of its tenured faculty: Myron Calhoun and Maarten van Swaay. Myron was a member of the Department since 1971, and Maarten joined in 1979. Both Maarten and Myron are profiled in the “CIS Fairchild Hall Era” presentation.

Myron and Maarten have stayed in contact with the Department, and it is always a pleasure to see them when they return to campus.



## Bill Hsu joins the faculty in 1999



- Bill completed an MSE at Johns Hopkins and a PhD at Univ. Illinois. He came to KSU in the fall of 1999, at the very end of ``Nichols Hall, Part 1.”
- Bill’s interests are many: machine learning, graphics, databases, and artificial intelligence among them. He is the founder of the Knowledge Discovery in Databases lab.
- Bill has been devoted to teaching a wide range of courses at both undergrad and grad level, often taking on extra courses as an overload. He is also active in Departmental outreach.
- Bill’s career and contributions rest within ``Part 2” of the CIS Nichols Hall history.

# John Hatcliff returns, and the next era of Nichols Hall begins...



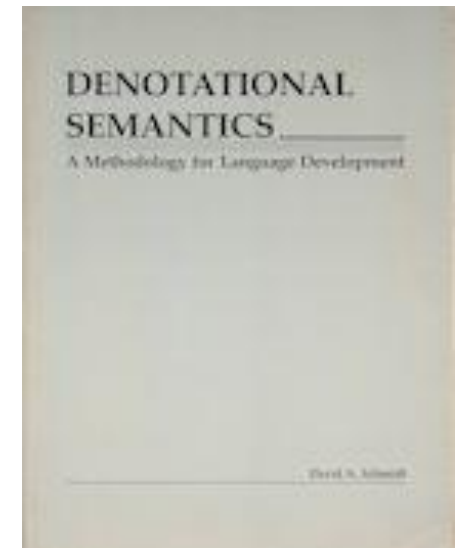
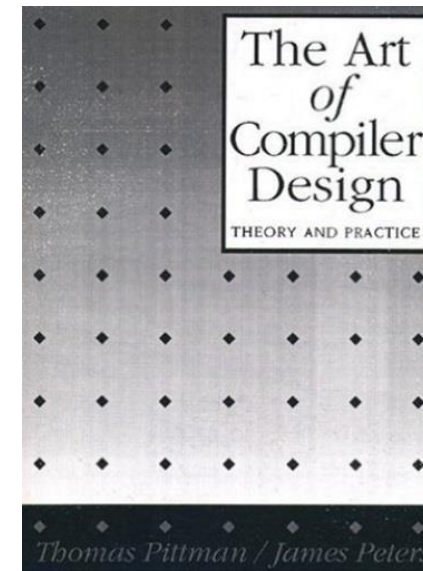
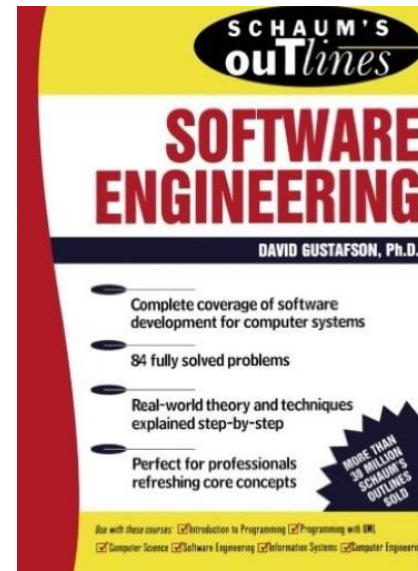
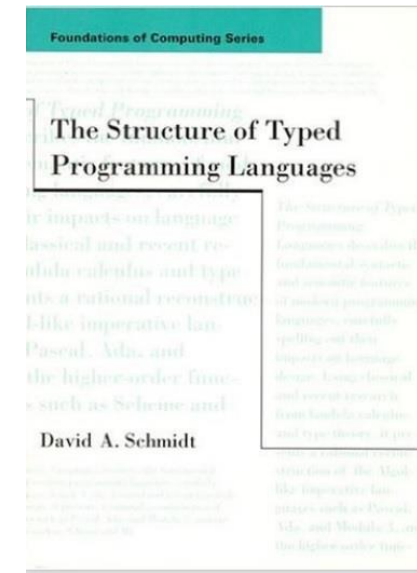
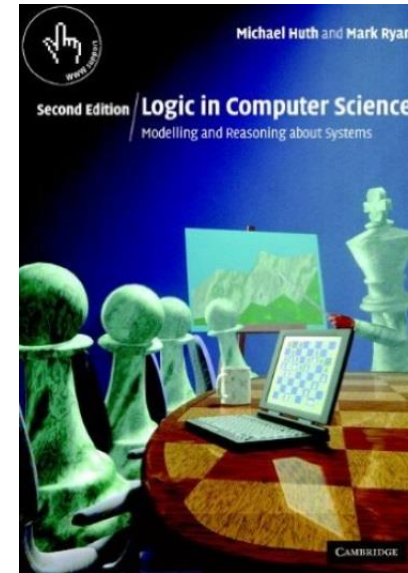
- John first came to KSU as a grad student from Queens University, Canada, and completed his PhD here, working with Olivier Danvy, publishing many papers. Following a postdoc at Univ. Copenhagen, John took a position at Oklahoma State Univ. --- John liked the midwest and he liked interacting with Matt Dwyer, who was nearby at KSU.
- In 1998, John returned to KSU and co-founded the Santos (Specification, Analysis, and Transformation of Software) Lab. Santos grew into a huge success, with Bandera and Cadena two of its initial, noteworthy products. (And there have been many more.)
- John's story lies at the center of the "Nichols Hall, Part 2" era, so we leave the details for then. We conclude here by noting that John breezed from Asst. to Full Professor and was elected a University Distinguished Professor in 2011. He also supervised two future CIS faculty: Robby and Venkatesh Ranganath.
- In 2016 John was appointed the Lucas-Rathbone Engineering Chair.



Nichols Hall, ``Part 2,'` comes next.

# Nichols Hall, Part 1: Noteworthy texts

- D. Schmidt, *Denotational Semantics*, Allyn and Bacon, 1986.
- T. Pittman and J. Peters, *The Art of Compiler Design*, Pearson, 1991.
- D. Schmidt, *Structure of Typed Programming Languages*, MIT Press, 1995.
- D. Gustafson, *Software Engineering*, Schaum, 2002.
- M. Huth and M. Ryan, *Logic in Computer Science*, Cambridge U. Press, 2004.



# Nichols Hall, Part 1: Journal publications

*(from [dblp.uni-trier.de](http://dblp.uni-trier.de))*

Daniel Andresen, Tao Yang, Oscar H. Ibarra:

**Toward a Scalable Distributed {WWW} Server on Workstation Clusters.** J. Parallel Distrib. Comput. 42(1): 91-100 (1997)

Daniel Andresen, Tao Yang:

**Selected Papers from Irregular 1999 - Preface.** Int. J. Found. Comput. Sci. 10(4): 373- (1999)

Jan Chomicki, Tomasz Imielinski:

**Finite Representation of Infinite Query Answers.** ACM Trans. Database Syst. 18(2): 181-223 (1993)

Jan Chomicki:

**Temporal Integrity Constraints in Relational Databases.** IEEE Data Eng. Bull. 17(2): 33-37 (1994)

Jan Chomicki:

**Efficient Checking of Temporal Integrity Constraints Using Bounded History Encoding.** ACM Trans. Database Syst. 20(2): 149-186 (1995)

Jan Chomicki, Damian Niwinski:

**On the Feasibility of Checking Temporal Integrity Constraints.** J. Comput. Syst. Sci. 51(3): 523-535 (1995)



# Publications, 2

Jan Chomicki:

**Depth-Bounded Bottom-Up Evaluation of Logic Program.** J. Log. Program. 25(1): 1-31 (1995)

Jan Chomicki, David Toman:

**Implementing Temporal Integrity Constraints Using an Active DBMS.** IEEE Trans. Knowl. Data Eng. 7(4): 566-582 (1995)

James M. Bieman, Albert L. Baker, Paul N. Clites, David A. Gustafson, Austin Melton:

**A standard representation of imperative language programs for data collection and software measures specification.** Journal of Systems and Software 8(1): 13-37 (1988)

Austin C. Melton, David A. Gustafson, James M. Bieman, Albert L. Baker:

**A mathematical perspective for software measures research.** Software Engineering Journal 5(5): 246-254 (1990)

Albert L. Baker, James M. Bieman, Norman E. Fenton, David A. Gustafson, Austin Melton, Robin W. Whitty:

**A philosophy for software measurement.** Journal of Systems and Software 12(3): 277-281 (1990)

Ramón A. Mata-Toledo, David A. Gustafson:

**A factor analysis of software complexity measures.** Journal of Systems and Software 17(3): 267-273 (1992)

Sallie Keller-McNulty, Mark S. McNulty, David A. Gustafson:

**Stochastic models for software science.** Journal of Systems and Software 16(1): 59-68 (1991)

# Publications, 3

Richard E. Courtney, David A. Gustafson:

**Shotgun correlations in software measures.** Software Engineering Journal 8(1): 5-13 (1993)

David A. Gustafson:

**Profile of a Winner: Kansas State University.** AI Magazine 19(3): 27 (1998)

David A. Gustafson:

**Kansas State's Slick Willie Robot Software.** AI Magazine 18(1): 33-36 (1997)

Olivier Danvy:

**Semantics-Directed Compilation of Nonlinear Patterns.** Inf. Process. Lett. 37(6): 315-322 (1991)

Anders Bondorf, Olivier Danvy:

**Automatic Autoprojection of Recursive Equations with Global Variables and Abstract Data Types.** Sci. Comput. Program. 16(2): 151-195 (1991)

Charles Consel, Olivier Danvy:

**Partial Evaluation in Parallel.** Lisp and Symbolic Computation 5(4): 327-342 (1992)

Olivier Danvy, John Hatcliff:

**CPS-Transformation After Strictness Analysis.** LOPLAS 1(3): 195-212 (1992)

# Publications, 4

Matthew B. Dwyer, Lori A. Clarke:

**A Compact Petri Net Representation and Its Implications for Analysis.** IEEE Trans. Software Eng. 22(11): 794-811 (1996)

Matthew B. Dwyer, Virgil Wallentine:

**A Framework for Parallel Adaptive Grid Simulations.** Concurrency - Practice and Experience 9(11): 1293-1310 (1997)

Guoyin Wang, Paul S. Fisher:

**A novel logical neuron model.** Int. J. Intell. Syst. 14(12): 1199-1211 (1999)

Ahmet M. Eskicioglu, Paul S. Fisher:

**Image quality measures and their performance.** IEEE Trans. Communications 43(12): 2959-2965 (1995)

Sajal K. Das, Paul S. Fisher, Hua Zhang:

**Efficient Parallel Algorithms for Pattern Recognition.** Parallel Algorithms Appl. 2(1-2): 81-98 (1994)

George E. Mobus, Paul S. Fisher:

**Mavric's Brain.** IEA/AIE 1994: 315-320



# Publications, 5

Olivier Danvy, John Hatcliff:

**CPS-Transformation After Strictness Analysis.** LOPLAS 1(3): 195-212 (1992)

John Hatcliff, Olivier Danvy:

**A Computational Formalization for Partial Evaluation.** Mathematical Structures in Computer Science 7(5): 507-541 (1997)

John Hatcliff, Olivier Danvy:

**Thunks and the lambda-Calculus.** J. Funct. Program. 7(3): 303-319 (1997)

John Hatcliff:

**Foundations for Partial Evaluation of Functional Programs with Computational Effects.** ACM Comput. Surv. 30(3es): 13 (1998)

Matthew B. Dwyer, John Hatcliff, Muhammad Nanda:

**Using Partial Evaluation to Enable Verification of Concurrent Software.** ACM Comput. Surv. 30(3es): 22 (1998)

Gilles Barthe, John Hatcliff, Morten Heine Sørensen:

**CPS Translations and Applications: The Cube and Beyond.** Higher-Order and Symbolic Computation 12(2): 125-170 (1999)

Rodney R. Howell, Louis E. Rosier, Dung T. Huynh, Hsu-Chun Yen:

**Some Complexity Bounds for Problems Concerning Finite and 2-Dimensional Vector Addition Systems with States.** Theor. Comput. Sci. 46(3): 107-140 (1986)

# Publications, 6

Rodney R. Howell, Louis E. Rosier, Hsu-Chun Yen:

**An  $O(n^{1.5})$  Algorithm to Decide Boundedness for Conflict-Free Vector Replacement Systems.** Inf. Process. Lett. 25(1): 27-33 (1987)

Rodney R. Howell, Louis E. Rosier:

**An Analysis of the Nonemptiness Problem for Classes of Reversal-Bounded Multicounter Machines.** J. Comput. Syst. Sci. 34(1): 55-74 (1987)

Rodney R. Howell, Louis E. Rosier:

**Completeness Results for Conflict-Free Vector Replacement Systems.** J. Comput. Syst. Sci. 37(3): 349-366 (1988)

Rodney R. Howell, Louis E. Rosier:

**Problems Concerning Fairness and Temporal Logic for Conflict-Free Petri Nets.** Theor. Comput. Sci. 64(3): 305-329 (1989)

Mohamed G. Gouda, Rodney R. Howell, Louis E. Rosier:

**The Instability of Self-Stabilization.** Acta Inf. 27(8): 697-724 (1990)

Sanjoy K. Baruah, Louis E. Rosier, Rodney R. Howell:

**Algorithms and Complexity Concerning the Preemptive Scheduling of Periodic, Real-Time Tasks on One Processor.** Real-Time Systems 2(4): 301-324 (1990)

# Publications, 7

Rodney R. Howell, Louis E. Rosier, Hsu-Chun Yen:

**Global and Local Views of State Fairness.** Theor. Comput. Sci. 80(1): 77-104 (1991)

Rodney R. Howell, Louis E. Rosier, Hsu-Chun Yen:

**A Taxonomy of Fairness and Temporal Logic Problems for Petri Nets.** Theor. Comput. Sci. 82(2): 341-372 (1991)

Ludmila Cherkasova, Rodney R. Howell, Louis E. Rosier:

**Bounded Self-Stabilizing Petri Nets.** Acta Inf. 32(3): 189-207 (1995)

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J. Parallel Distrib. Comput. (1)

*4 more options*

Rodney R. Howell, Muralidhar K. Venkatrao:

**On Non-Preemptive Scheduling of Recurring Tasks Using Inserted Idle Times.** Inf. Comput. 117(1): 50-62 (1995)

Rodney R. Howell, Petr Jancar, Louis E. Rosier:

**Completeness Results for Single-Path Petri Nets.** Inf. Comput. 106(2): 253-265 (1993)

Rodney R. Howell, Louis E. Rosier, Hsu-Chun Yen:

**Normal and Sinkless Petri Nets.** J. Comput. Syst. Sci. 46(1): 1-26 (1993)

Sanjoy K. Baruah, Rodney R. Howell, Louis E. Rosier:

**Feasibility Problems for Recurring Tasks on one Processor.** Theor. Comput. Sci. 118(1): 3-20 (1993)



# Publications, 8

Rodney R. Howell:

**The Complexity of Problems Involving Structurally Bounded and Conservative Petri Nets.** Inf. Process. Lett. 39(6): 309-315 (1991)

Rodney R. Howell, Louis E. Rosier, Hsu-Chun Yen:

**Global and Local Views of State Fairness.** Theor. Comput. Sci. 80(1): 77-104 (1991)

William H. Hsu, Sylvian R. Ray, David C. Wilkins:

**A Multistrategy Approach to Classifier Learning from Time Series.** Machine Learning 38(1-2): 213-236 (2000)

Michael Huth:

**A Maximal Monoidal Closed Category of Distributive Algebraic Domains.** Inf. Comput. 116(1): 10-25 (1995)

Adrian Fiech, Michael Huth:

**Algebraic Domains of Natural Transformations.** Theor. Comput. Sci. 136(1): 57-78 (1994)

Bina Ramamurthy, Austin Melton:

**A Synthesis of Software Science Measures and the Cyclomatic Number.** IEEE Trans. Software Eng. 14(8): 1116-1121 (1988)

Sujeet Sheno, Austin Melton:

**An extended version of the fuzzy relational database model.** Inf. Sci. 52(1): 35-52 (1990)

# Publications, 9

Norman E. Fenton, Austin Melton:

**Deriving structurally based software measures.** Journal of Systems and Software 12(3): 177-187 (1990)

Masaaki Mizuno, Arthur E. Oldehoeft:

**An access control language for object-oriented programming systems.** Journal of Systems and Software 13(1): 3-12 (1990)

Masaaki Mizuno, David A. Schmidt:

**A Security Flow Control Algorithm and Its Denotational Semantics Correctness Proof.** Formal Asp. Comput. 4(6A): 727-754 (1992)

Mitchell L. Neilsen, Masaaki Mizuno:

**Coterie Join Algorithm.** IEEE Trans. Parallel Distrib. Syst. 3(5): 582-590 (1992)

Mitchell L. Neilsen, Masaaki Mizuno:

**A quorum-based algorithm for parameterized semaphore operations.** Journal of Systems and Software 21(1): 103-112 (1993)

Mitchell L. Neilsen, Masaaki Mizuno:

**Nondominated k-Coterie for Multiple Mutual Exclusion.** Inf. Process. Lett. 50(5): 247-252 (1994)

Mitchell L. Neilsen, Masaaki Mizuno:

**Erratum to "Nondominated k-coterie for Multiple Mutual Exclusion".** Inf. Process. Lett. 60(6): 319 (1996)

# Publications, 10

Masaaki Mizuno, Mitchell L. Neilsen, Michel Raynal:

**An Optimistic Protocol for a Linearizable Distributed Shared Memory System.** Parallel Processing Letters 6(2): 265-278 (1996)

Masaaki Mizuno:

**A Structured Approach for Developing Concurrent Programs in Java.** Inf. Process. Lett. 69(5): 233-238 (1999)

Rodney R. Howell, Mikhail Nesterenko, Masaaki Mizuno:

**Finite-state self-stabilizing protocols in message-passing systems.** WSS 1999: 62-69

Masaaki Mizuno, Mikhail Nesterenko:

**A Transformation of Self-Stabilizing Serial Model Programs for Asynchronous Parallel Computing Environments.** Inf. Process. Lett. 66(6): 285-290 (1998)

Michel Hurfin, Masaaki Mizuno, Michel Raynal, Mukesh Singhal:

**Efficient Distributed Detection of Conjunctions of Local Predicates.** IEEE Trans. Software Eng. 24(8): 664-677 (1998)

Mitchell L. Neilsen:

**Properties of Nondominated K-Coterie.** Journal of Systems and Software 37(1): 91-96 (1997)



# Publications, 11

David A. Schmidt:

**Detecting Stack-Based Environments in Denotational Definitions.** Sci. Comput. Program. 11(2): 107-131 (1988)

Susan Even, David A. Schmidt:

**Category-Sorted Algebra-Based Action Semantics.** Theor. Comput. Sci. 77(1&2): 73-95 (1990)

Kyung-Goo Doh, David A. Schmidt:

**Action Semantics-Directed Prototyping.** Comput. Lang. 19(4): 213-233 (1993)

David A. Schmidt:

**On the Need for a Popular Formal Semantics.** SIGPLAN Notices 32(1): 115-116 (1997)

David A. Schmidt:

**Programming Language Semantics.** The Computer Science and Engineering Handbook 1997: 2237-2254

David A. Schmidt:

**Programming Language Semantics.** ACM Comput. Surv. 28(1): 265-267 (1996)

Daniel Le Métayer, David A. Schmidt:

**Structural Operational Semantics as a Basis for Static Program Analysis.** ACM Comput. Surv. 28(2): 340-343 (1996)

# Publications, 12

David A. Schmidt:

**Trace-Based Abstract Interpretation of Operational Semantics.** Lisp and Symbolic Computation 10(3): 237-271 (1998)

Anindya Banerjee, David A. Schmidt:

**Stackability in the Simply-Typed Call-by-Value lambda Calculus.** Sci. Comput. Program. 31(1): 47-73 (1998)

David A. Schmidt:

**Induction, Domains, Calculi: Strachey's Contributions to Programming-Language Engineering.** Higher-Order and Symbolic Computation 13(1/2): 89-101 (2000)

Gurdip Singh:

**Real-Time Leader Election.** Inf. Process. Lett. 49(2): 57-61 (1994)

Yi Pan, Mounir Hamdi, Gurdip Singh:

**Selection on k-Dimensional Meshes with Multiple Broadcasting.** Comput. J. 39(2): 140-144 (1996)

Gurdip Singh:

**Leader Election in the Presence of Link Failures.** IEEE Trans. Parallel Distrib. Syst. 7(3): 231-236 (1996)

# Publications, 13

Yi Pan, Mounir Hamdi, Gurdip Singh:

**Selection on k-Dimensional Meshes with Multiple Broadcasting.** Comput. J. 39(2): 140-144 (1996)

Gurdip Singh:

**Efficient Leader Election Using Sense of Direction.** Distributed Computing 10(3): 159-165 (1997)

Gurdip Singh:

**Leader Election in Complete Networks.** SIAM J. Comput. 26(3): 772-785 (1997)

Gurdip Singh:

**Constraint-based Structuring of Network Protocols.** Distributed Computing 12(1): 1-12 (1999)

Rayford B. Vaughn, Hossein Saiedian, Elizabeth A. Unger:

**A survey of security issues in office computation and the application of secure computing models to office systems.**

Computers & Security 12(1): 79-97 (1993)

James M. Slack, Elizabeth A. Unger:

**Integrity in object-oriented database systems.** Computers & Security 12(4): 389-404 (1993)



# Publications, 14

C. Samuel Hsieh, Elizabeth A. Unger, Ramón A. Mata-Toledo:  
**Using program dependence graphs for information flow control.** Journal of Systems and Software 17(3): 227-232 (1992)

Chyuan Samuel Hsieh, Elizabeth A. Unger:  
**On the control structure of a program slice.** Journal of Systems and Software 34(2): 123-126 (1996)

Rayford B. Vaughn, Hossein Saiedian, Elizabeth A. Unger:  
**A Proposed Mechanism for Implementation of Non-Discretionary Access Controls in a Network Environment.** Computer Networks and ISDN Systems 26(12): 1523-1531 (1994)

Maarten van Swaay:  
**The value and protection of privacy.** Computer Networks and ISDN Systems 26(Supplement-4): S149-S155 (1995)

Wan-Hong S. Cheng, Virgil Wallentine:  
**DEBL: A Knowledge-Based Language for Specifying and Debugging Distributed Programs.** Commun. ACM 32(9): 1079-1084 (1989)

# Publications, 15

T. Zhou, Thomas L. Isenhour, Maria Zamfir Bleyberg, John C. Marshall:

**Object-oriented programming applied to laboratory automation. 1. An icon-based user interface for the Analytical Director.** Journal of Chemical Information and Computer Sciences 32(1): 79-87 (1992)

Maria Zamfir Bleyberg:

**Modeling Concurrency with AND/OR Algebraic Theories.** AMAST 1991: 117-131

Maria Zamfir Bleyberg, T. Zhou, Thomas L. Isenhour, John C. Marshall:

**The Design and Implementation of an Analytical Chemistry Expert System.** IEA/AIE (Vol. 2) 1990: 1073-1078