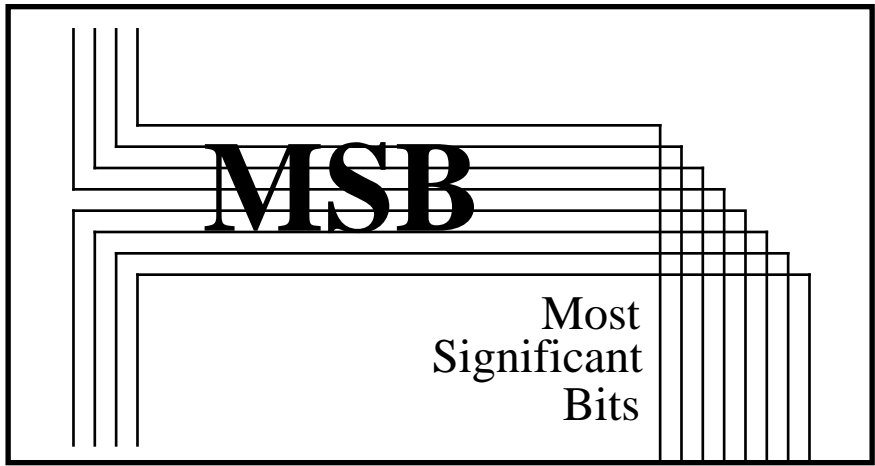




Department of Computer Science & Engineering
University of Washington



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Academic All-American

Dave Janoski

A Husky Computer Scientist

His profile reads “5-foot-10, 185 pounds,” making him perhaps the only computer scientist whose size has been officially reported by the UW. The publication was the Husky football program for the September 14th game against Brigham Young University. The computer scientist on the program cover was split end and team captain Dave Janoski.

Janoski, who graduated after autumn quarter with a bachelors degree in computer science and a minor in mathematics, won repeated recognition for his academic and sports accomplishments over his college career. His 3.5 GPA and his talent as a receiver earned him election to the District VIII Academic All-America squad for the past two seasons, and Pac-10 All-Academic Football Team selection, again for two years straight.

Wearing #19 Janoski started 36 of the 44 games in which he played. But while he was playing for Coach Lambright, he was

Janoski continued on page 2



Chris Prince, Doug Zongker, Yih-Chun Hu

CSE Team “A” Wins Western Regional Programming Contest

Fastest Code in the West

UW students showed their stuff at the ACM International Collegiate Programming Contest’s Pacific Regional competition held last November. The CSE “A” team won the competition and the CSE “B” team finished 9th in a field of 44 west coast US and Canadian entrants. The “A” team—as well as the Stanford “A” team, the runners-up—will compete against forty more teams at the international finals to be held in March.

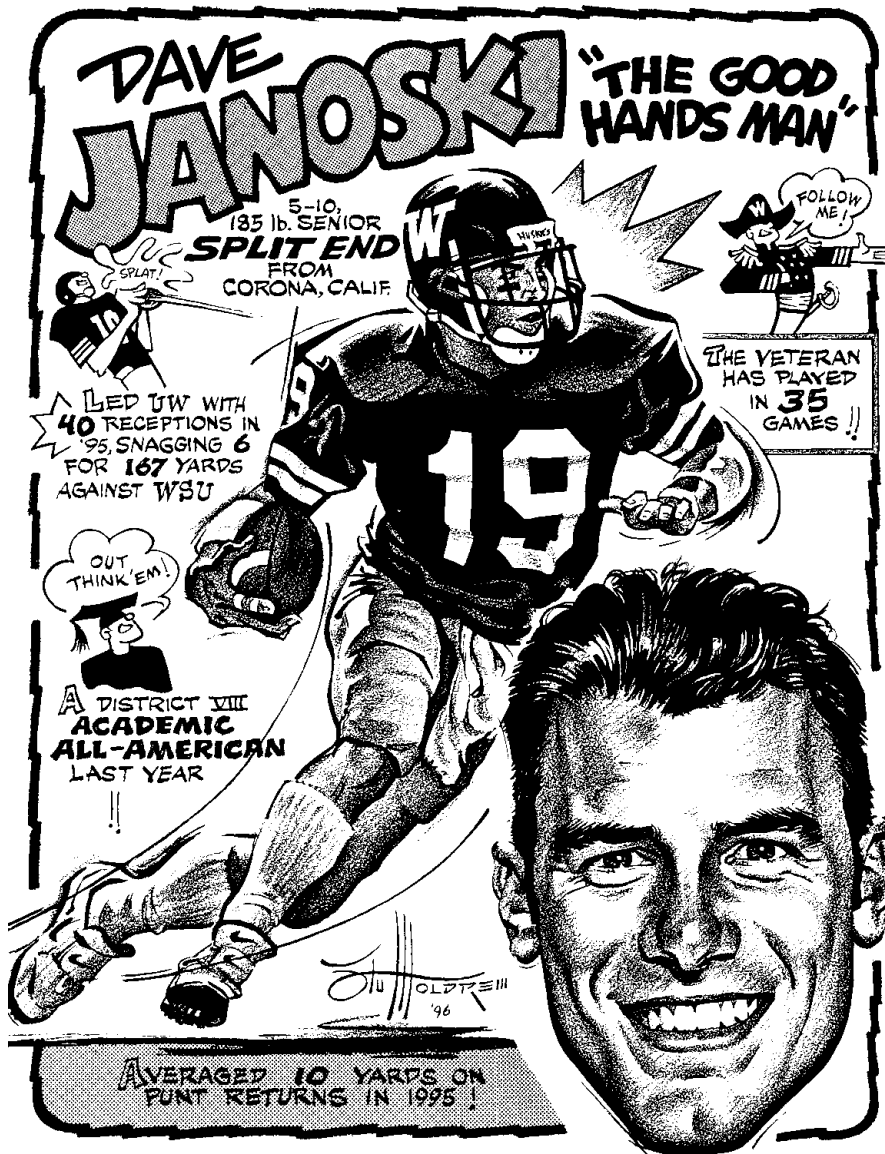
The UW teams were balanced combinations of a first year graduate student, a Computer Engineering major and a Computer Science major. The winning “A” team roster was grad student Doug Zongker, junior Chris Prince (CE) and senior Yih-Chun Hu (CS and Math). The “B” team was composed of grad student Corey Anderson, senior Richard Chinn (CE) and senior Sean McDirmid (CS). Schools are allowed at most two teams with at least two undergraduates on each team.

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Profiles of New Faculty:

Martin Dickey p. 3
Anna Karlin p. 4

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Dave Janoski, a computer scientist known for his "good hands," from the Husky Gameday Program, September 14, 1996, Washington vs. Brigham Young. By permission.

DAVE JANOSKI

UW's 10th best all time pass receiver with 89 career catches, 11th best in receiving yards with 1364 yds. (A foot injury in the first quarter of the WSU Apple Cup game left him six yards short of the 10th best.) He was named honorable mention for the All-Pac-10 team two years in a row.

Year	G-S	Rec	Yds	Avg	TD
1993	11-5	14	249	17.8	0
1994	11-10	14	215	15.4	2
1995	11-11	40	657	16.4	2
1996	11-10	21	243	11.6	2
Total	44-36	89	1364	15.3	6

also programming for the faculty as part of CSE's heavily systems oriented curriculum. How did he fulfill expectations of two demanding masters neither of whom would cut him any slack? "You go straight from practice to the computer lab or to the library to study," said Janoski. "It's a sacrifice that I make because it's something that I enjoy doing. That's what's helped me so far in academics. Because it's something I enjoy it's not hard to get motivated to go study." Since the team is sequestered from 2:30 Friday until after the game, Saturday nights in the fall found Janoski in the lab. It's not a problem the other students had. "I don't think that many athletes have ever been in the computer science department," he noted.

Janoski caught a touchdown pass against BYU, furthering an outstanding football career. What is in store for the scholar-athlete? "I'm going to try and see how far football will take me," he said, but at the same time the NCAA was giving him a handsome post-graduate scholarship. For Dave Janoski, it's probably more of the same: writing programs and appearing in programs.

MSB is published semiannually by the UW Department of Computer Science & Engineering to provide current information about its undergraduates, graduate students, faculty and alumni. *MSB* is supported by the CSE Affiliates Program. Volume 10, Number 1 editors are Larry Snyder and Judy Watson. We are grateful to David Salesin, Ronen Barzel, Annabella Serra and the Spring Quarter 1996 students of CSE 490A for the cover graphic from their animation *Fish Shtick*; "The Good Hands Man" drawing courtesy of the Department of Intercollegiate Athletics; photos by Judy Watson.

MSB's Home Page
<http://www.cs.washington.edu/publications/msb/msb.html>



Lecturing CSE Students

Martin Dickey Brings Teaching Style, Enthusiasm To UW

“Repeat after me,” says Martin Dickey to his CSE142 *Introduction to Programming I* students. It’s 35 minutes into the lecture. The initial barrage of questions is over and the discussion has subsided. Though the students are attentive, there isn’t enough interaction for this veteran teacher. “The actual parameters must match the formal parameters in number, order and type,” he says, and the class dutifully repeats. “There. That’s what it was like for the students who learned C programming in 1847!” The stunt gets a laugh. More importantly, it rekindles class participation for the rest of the period.

Techniques like this are the stock-in-trade of Martin Dickey, CSE’s new lecturer. He is a native of Ohio and a 1969 graduate of Kent State University in mathematics. He earned a masters in mathematics at Kentucky, spent three years with the US Maritime Administration and eleven years with Honeywell before returning to graduate school. Since 1991, following the completion of his PhD at Arizona State University, he has been teaching at Illinois College in Jacksonville, Illinois.

Founded in 1829, this small 4-year liberal arts school emphasizes teaching and personal attention to students. This allowed Dickey to develop his repertoire of discussion-inducing techniques, and the small size assured that he would teach the whole undergraduate curriculum. These talents are critically useful to beginning students.

“Martin is a terrific teacher,” says CSE Chair Ed Lazowska. “We are delighted to have him bringing his personalized, small-college style to UW. This will be especially valuable to the non-majors who must take CSE as a requirement. Many find computer science quite challenging.”

At UW Dickey will be responsible for the introductory programming sequence, CSE142 and its C++ successor, CSE143, *Introduction to Programming II*. These two courses service over 600 students per quarter. Though the entire faculty share lecturing duties with Dickey, he is responsible for continuity in the sequence. In addition, he will also teach other classes in the major, assuring continuity across the curriculum.

Dickey’s doctorate, directed by ASU Prof. Leonard Faltz, was titled *Exploiting low-level linguistic knowledge in neu-*

ral network speech recognition. He is also an author with Faltz of “Do Men Speak Faster Than Women?”, a statistical analysis of continuous American speech. When asked by *MSB* if it is so, he said there is a slight difference. It is not noticeable, however, when his class speaks in unison.

Transitions

Professor **Alan Borning** began a one year sabbatical to be split between UW and two universities in Melbourne, Australia: Monash University and University of Melbourne.

Steve Burns has joined Intel Corporation.

Illinois College’s top computer science teacher, **Martin Dickey**, has been appointed Lecturer.

Associate Professor **Susan Eggers** began a one year sabbatical to be apportioned between UW and visiting other universities and research labs.

Associate Professor **Steve Hanks** will split his year long sabbatical between the Wharton School of the University of Pennsylvania and UW.

Anna Karlin joined CSE as an Associate Professor.

Technology Lecture Series

A lecture series by leading technologists has been organized in connection with the inaugural year of CSE’s Professional Masters Program. The three lectures in the 1996-1997 series are all held in 210 Kane Hall on the University of Washington campus.

NOVEMBER 7, 1996

Starwave Internet Services are the ‘killer app’ for Java
Patrick Naughton, Vice President, Starwave

FEBRUARY 24, 1997

Amazon.com: Building Earth’s Biggest Bookstore
Jeff Bezos, Founder and CEO, Amazon.com

APRIL 16, 1997

Intentional Programming—An Ecology for Abstractions
Charles Simonyi, Chief Architect, Microsoft Advanced Research Division

Datagrams

Honored New Graduate Students

The National Science Foundation has awarded NSF Fellowships to four of the 24 graduate students of the Autumn 1996 entering class: **Greg Badros** (Duke), **A. J. Bernheim** (Williams), **Jeremy Buhler** (Rice) and **Doug Zongker** (Michigan State). Buhler declined the award to accept a Hertz Fellowship.

Fulbright Scholar

Professor **Alan Borning** has been named a Fulbright Senior Scholar to study for three months in Australia. He will split his time between the University of Melbourne and Monash University, also in Melbourne.

Fellows Honored

The ACM has named Professors **Jean-Loup Baer** and **Alan Shaw** Fellows. The awards are to be presented at the annual ACM Meeting in March.

Third VPW Guest

The National Science Foundation's Visiting Professorships for Women program is sponsoring a year long visit by Professor **Anne Condon** of the University of Wisconsin. Condon, who received her PhD in 1987 from CSE, is the third consecutive VPW guest, following **Mary Vernon**, also from the University of Wisconsin, and **Anna Karlin**, now permanently on the CSE faculty.

A Rising Tide of Interest in Wavelets

Wavelets for Computer Graphics: Theory and Applications by associate professor **David Salesin**, former CSE professor **Tony DeRose** and Applied Mathematics graduate student **Eric Stollnitz** sold out 200 copies on the first day of the SIGGRAPH conference, setting a record for its publisher Morgan-Kaufmann. A 200 copy reorder sold out on the last day of SIGGRAPH, too.

Best in the West

"Indigo: A Local Propagation Algorithm for Inequality Constraints" won the Best Paper Award at UIST 96 for its authors, professors **Alan Borning** and **Richard Anderson** and CSE grad **Bjorn Freeman-Benson** (PhD '91). User Interface and Software Technology, the premier human-computer interface conference, was held in Seattle in November. Post-doc **Francesmary Modugno** was one of the conference organizers, responsible for demonstrations.

Class Added for Professional Masters

Affiliate professor **Terry Gray**, Director of Networks and Distributed Computing at UW, will teach CSE 588, *Network Systems*, in Spring Quarter as part of the Professional Masters Program's inaugural year. **David Notkin**'s CSE 584 *Software Engineering* class will also be offered in Spring Quarter 97. In other PMP news spring admissions added a second class of 10 students.

Outstanding Teaching Assistants

James Fix and **Ori Gershony** won the 1996 Bob Bandes Memorial Award honoring outstanding teaching assistants in CSE classes. **Geoff Voelker** received Honorable Mention.



Karlin Joins Faculty Permanently

She does algorithm design, she does competitive analysis, and, occasionally, she does *Severe Tire Damage*. In addition to being a versatile theoretical computer scientist, a dedicated teacher and an eager collaborator with the operating systems and distributed computing groups, Anna Karlin, CSE's newest associate professor, is also a founding member of the rock group *Severe Tire Damage*, the first band to broadcast live on the Internet. As Chair Ed Lazowska observed, "Anna brings strength in scholarship and the electric guitar."

A native of Palo Alto, California, Karlin originally came to CSE two years ago from Digital's Systems Research Center as part of the National Science Foundation's Visiting Professorships for Women program. So enthusiastically did she devote herself to fulfilling VPW's goals as a positive role model that CSE wanted her to stay on permanently. Karlin was delighted to accept.

Karlin received her BSc in applied mathematics and her PhD in computer science, both from Stanford University. Following the completion of her doctoral dissertation, *Sharing Memory in Distributed*

Karlin continued on page 5

Karlin continued from page 4

Systems — Methods and Applications, she spent 1987-88 at Princeton University as a post-doc. She then was principal scientist at DEC SRC for six years before coming to UW.

Karlin's main research area has been competitive algorithms, which she explains as the design of on-line algorithms that have performance within a small factor of the optimal off-line algorithm. "On-line algorithms must solve the problem as they receive the data," Karlin says, "But off-line algorithms can see the entire data set before beginning the computation, and can therefore achieve an optimal solution. The classic trivial example is ski rental," she continued. "Suppose skis cost \$40 per day to rent, \$400 to buy, and you're going skiing for the first time, unsure of whether you will like it or not. Should you rent or buy? Though you don't know how many times you will go skiing, there is a strategy that is guaranteed to be within a factor of two of optimal: Rent until you've paid the cost of buying, then buy." Karlin has applied competitive analysis to a variety of computational problems including snoopy caching, process synchronization and load balancing.

Severe Tire Damage, described on the *Rolling Stones* web page as "furry Palo Alto geeks," set Internet history in June '93 as the first rock band to cybercast on the M-Bone. The *Stones* might well be dismissive since they'd billed their November '94 concert as the first on the Internet, despite following *STD*, and 1994 concerts by *Deth Specula* and a Seattle band *Sky Cries Mary*. But Karlin asserts with a laugh that her favorite critique is from the CBC's Discovery Channel, "STD is the worst rock and roll band to play over the Internet, or perhaps anywhere else."

Though she left *Severe Tire Damage* when she left the Bay Area, Karlin has found incipient rockers among the CSE faculty and grad students. She is also beginning to look at research issues in the fields of digital audio and computer applications in music.

Accentuating the Positive . . .



During summer 1996 CSE faculty participated in the Computer Research Association's Mentoring Program for Women, in which upper class undergraduates joined women computer scientists for a few weeks to learn more about a career in CS. Here (from left) Professor Linda Shapiro and Research Associate Francesmary Modugno are shown with Julie Reed from Kansas State University and Crystal Gross from University of Oregon. The CRA program's goal is to increase the number of women in computing.

Programming Contest cont. from page 1

Teams are given eight programming problems to solve in five hours using C++ in the Microsoft Windows environment. The team with the most correct solutions wins. UW "A" was the only team to solve six of the eight problems correctly, and Stanford "A" was unique in solving five. Rounding out the top five were Stanford "B" and the University of British Columbia "A" with four each, and Berkeley "A" with three. Ties are broken based on the time required to produce the correct solutions. The UW "B" team also matched Berkeley with three correct submissions.

The UW "B" team's accomplishment is perhaps even more amazing considering that the team was formed at the last minute when original team member

Amanda Barrett was disqualified. Though Amanda is a UW senior in CS, her BA from Smith in Economics was judged to disqualify her as an "undergraduate" for the purposes of the contest. So, at the last minute Sean was drafted.

More than a 1000 teams from colleges and universities around the world compete in the annual event. The finals, which pit the forty regional finalists and runners-up against one another, are held at the annual ACM conference. Microsoft sponsors the annual ACM event. For the third year running UW co-hosted the Pacific Regionals with a site in California. The simultaneous competition was coordinated over the Internet.

CSE Team "A" placed 2nd in the finals! See next issue. — Ed.

Doctorate Degrees Awarded

Congratulations to our recent PhD graduates, through mid-summer 1996, listed below with their research advisor, initial appointment, and dissertation title.

Tor Jeremiassen	Eggers	AT&T Bell Labs
<i>Using Compile-Time Analysis and Transformations to Reduce Coherency Traffic on Shared-Memory Multiprocessors</i>		
Per Christensen	DeRose/Salesin	Mental Images
<i>Hierarchical Techniques for Glossy Global Illumination</i>		
Jeffrey Chase	Lazowska/Levy	Duke University
<i>An Operating System Structure for Wide-Address Architectures</i>		
Rakesh Sinha	Beame	Florida International University
<i>Some Topics in Parallel Computation and Branching Programs</i>		
Scott Hauck	Borriello/Ebeling	Northwestern University
<i>Multi-FPGA Systems</i>		
Elizabeth Walkup	Borriello	Intel, Beaverton
<i>Optimization of Linear Max-Plus Systems With Application to Timing Analysis</i>		
Cecelia Buchanan	Zahorjan	Washington State University
<i>Specifying Temporal Behavior in Interactive Multimedia</i>		
Craig Anderson	Baer	Apple Computer
<i>Improving Performance of Bus Based Multiprocessors</i>		
Denise Draper	Hanks	Rockwell Lab, Palo Alto
<i>Localized Partial Evaluation of Belief Networks</i>		
Henrik Hulgaard	Burns	Technical University, Denmark
<i>Timing Analysis and Verification of Timed Asynchronous Circuits</i>		
Ji-hong Kim	Yongmin Kim	Texas Instruments
<i>Towards More Efficient Domain-Specific Image Computing</i>		
Georges Winkenbach	Salesin	Inklination, Inc., Vancouver, BC
<i>Computer-Generated Pen-And-Ink Illustration</i>		
David Keppel	Eggers	Transmeta, California
<i>Runtime Code Generation</i>		
Anthony LaMarca	Ladner	Xerox PARC
<i>Caches and Algorithms</i>		
Mike Williamson	Hanks	Carnegie Mellon U, post-doc
<i>A Value Directed Approach to Planning</i>		
Jean Schweitzer	DeRose	
<i>Analysis and Application of Subdivision Surfaces</i>		
Shun-Tak Leung	Zahorjan	Digital, SRC
<i>Array Restructuring for Cache Locality</i>		
Dean Tullsen	Eggers	U of California, San Diego
<i>Simultaneous Multithreading</i>		
Gail Murphy	Notkin	University of British Columbia
<i>Lightweight Structural Summarization as an Aid to Software Evolution</i>		

Burns Joins Intel

Assistant professor Steve Burns has left CSE to join Intel Development Labs in Beaverton, Oregon. Burns, who is a world expert in asynchronous, i.e. nonclocked, circuit design and formal verification of asynchronous circuits, is the newest member to join an extremely talented team in asynchronous design that Intel has hired in recent months.

"Intel is probably the only place in the world that is thinking about applying asynchronous design in the commercial arena," Burns said. He noted that as microprocessor design becomes more aggressive, solving clocking problems dominates design and limits performance. Asynchronous circuits can eliminate such problems by allowing circuits to run as fast as they can switch.

Burns joined CSE in 1991 after receiving his doctorate from Caltech, where he was the principal designer for the first asynchronous microprocessor. Burns' thesis work led him into modeling and verification of asynchronous circuits, a topic he actively pursued at UW. Last year Henrik Hulgaard completed a PhD under Burns' direction with a thesis titled *Timing Analysis and Verification of Timed Asynchronous Circuits*.

Burns received the prestigious NSF Young Investigator award in 1992. Perhaps his most impressive award, however, was the samurai sword he received for presenting the best paper, "General Conditions for the Decomposition of State Holding Elements," at the Asynch '96 conference, held at the University of Aizu, Japan. "Airport security guards get excited when you try to board a plane with a sword," Burns quipped.

At a party where the department bid sayonara to Burns, CSE Chair Ed Lazowska noted that having designed the first asynchronous processor, Burns was now moving his ideas out of the lab and into industry, an essential requirement for his ideas to have impact. But, Lazowska

Burns continued on page 7



Achiever Among Achievers

Corey Anderson Wins Dean's Medal

CSE attracts many top students who regularly distinguish themselves by winning honors and recognition at the University, in Washington or nationally. Even among this exclusive company, Corey Anderson stands out. He graduated at 19 this past June *summa cum laude* in computer science and mathematics, won the prestigious Dean's Medal in Science, won the Math Department's Outstanding Graduating Senior award, carried a 3.94 GPA, and entered CSE's graduate program destined for more distinctions. Corey's brother, Casey Anderson, graduated the same day in Computer Engineering, and at 20 is probably the youngest CE graduate at UW ever. But for the Andersons, the story isn't fraternal rivalry, but rather brotherly love.

The story begins in Tukwila, Washington, in 1989 when Corey was in eighth grade, Casey in ninth. The Anderson brothers enrolled in a math course at Highline Community College. Their mother Cathy, believing her sons too young to attend college on their own, enrolled in the class too. Soon the three were studying together and helping one

another to understand the material. After more math classes, the trio decided to earn associates degrees. The classes they took had to be worked in around the brothers' busy schedules of sports and high school activities. In June 1993, even before Corey had graduated from high school, the three Andersons graduated from Highline with AA degrees.

The Andersons' accomplishment made news in the *Seattle Times*, where Cathy acknowledged that she might never have gone to college had it not been for her sons. The two brothers, then 16 and 17, had not only earned AAs while attending high school, they'd aced all their classes, accumulating a 4.0 GPA at Highline. Craig Anderson, proud father and electronic technician, was credited with being the support system while wife and sons pursued their academic interests.

The next stop for the Anderson trio was UW. Corey attended tuition-free thanks to his status as a Washington Scholar, eligible to attend any state school gratis. Though they rode the bus together and continued to support one another, they were now sharing fewer classes. Cathy and Casey were both in the College of Engineering; she in Technical Communications and he in CSE's computer engineering program. Corey double majored in CS and Math.

Both Anderson brothers impressed the CSE faculty, but Corey especially excelled in several areas including hardware, graphics and theoretical topics. As a senior he was co-author on "Scale dependent reproductions of pen-and-ink illustrations," a research paper published at the prestigious SIGGRAPH Conference. As a teaching assistant for CSE142/143, Corey wrote the graphics package used each year by 1500 beginning programmers for their homework assignments. One professor summarized faculty opinion, "Corey is dynamite."

The Arts and Sciences Dean's Medal is presented each year to a graduating senior in recognition of academic excellence and intellectual diversity. One

medal is awarded in each of the college's four divisions: Humanities, Arts, Science and Social Science. CSE Chair Ed Lazowska said, "Corey has excelled as a student, TA, researcher, programmer and leader. He has made the very best of the rich opportunities UW presents."

*Even before
Corey graduated
from high
school, he had
earned a math
degree.*

Cathy graduated a year before the boys, but the family's amazing achievements again made headlines in the *Seattle Times* when the brothers graduated. She is now working at Microsoft, and Casey is a software engineer for Seattle-based WRQ. Corey entered CSE's graduate program to earn a Masters degree. And this fall led the UW's "B" team in the ACM International Programming Contest.

Burns continued from page 6

noted the gap Burns' departure would leave in CSE research and education arenas. And then to emphasize the point, he showed a 5 minute videotape of Burns' Spring '96 CSE477 *Digital System Design* class, where students demonstrated projects including a talking toaster, a four legged walking robot and an autonomous toy truck.

Burns subtly revealed his sensitivity to clocking in an April 1996 document where he listed his two daughters as both age 12. They're not twins; their ages are measured by different clock periods—Claire was 12 months, Maggie was 12 years. — Ed.

Send us your news and your URL!
msbnews@cs.washington.edu

Alumni Notes

Since 1973 **Stan Albert** (MS '71) has worked for Motorola in his hometown of Phoenix. Now working on software for embedded microprocessors, Stan "likes to 'shock' his younger co-workers with the fact that he got his CS degree before microprocessors came out!"

Carl Binding (PhD '87) has rejoined IBM Zurich following a stint in Swiss banking.

Francesca Brunner-Kennedy (MS '87) and **Dennis Kennedy** (MS '86) live in the Washington, DC area with daughter Amanda (7) and dog Oliver. She is a database engineer for SRA, he just retired from the Army. They look forward to one day returning to the Pacific Northwest.

Duke University associate professor **Carla Ellis**' (PhD '79) home page is <http://www.cs.duke.edu/~carla/>.

Steam Powered Turing Machine artist, **Terry Farrah** (MS '85), can be located at the URL: <http://www.halcyon.com/farrah/>.

Lucy Gibson (BS '88) completed her MS in CS from Georgia Tech in fall '96 and is looking for a job in AI, specifically Natural Language Understanding. URL: <http://www.cc.gatech.edu/ai/students/lucyg>.

Associate Professor **Eric Jul** (PhD '89) of DIKU, University of Copenhagen has received a three year \$500,000 infrastructure grant for research in high-speed networking. URL: <http://www.diku.dk/~eric>.

Geoff Leach (PhD '75) continues to consult via Internet from his home in California's Sierra Nevada.

The URL for **Laura Moody** (BS '81) and **Scott Moody** (MS '82) is <http://www.seanet.com/~moody>.

The home page for **Mark Phaedrus** (BS '92) is <http://www.halcyon.com/phaedrus/>.

After completing eight years work on music software for Opcode Systems, **Andrew Wolpert** (BS '79) is beginning a project involving DSP for music research. URL: <http://www.best.com/~awolpert/>.

Survey Results

Last issue we asked your opinion on alternative forms of publication for **MSB**. The respondents favored by 4 to 1 electronic publication with a twice-a-year prompt announcing new issues. However, there was a significant sentiment from alumni for a traditional paper newsletter, too. For this reason and the fact that some **MSB** recipients are not yet electronically proficient, the newsletter will continue to be published on paper. But, it is also published electronically, and readers who send us their email addresses will receive a twice-a-year ping announcing the next issue.

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