UNIVERSITY OF WISCONSIN – MADISON
COMPUTER SCIENCES DEPARTMENT

Programs of Study

The Department of Computer Sciences offers M.S. and Ph.D. degrees in computer science. Research areas include artificial intelligence, computer architecture, computer networks, computer vision, database systems, distributed systems, mathematical programming, modeling and analysis of computer systems, numerical analysis, operating systems, performance evaluation, programming languages, software development environments, and theory of computation. Ongoing collaborative research with other departments includes projects in computational biology, computational chemistry, space sciences, and medical diagnosis. As one of the top ten computer science departments in the country, the faculty and students have earned high regard nationally and internationally for their achievements. A close collaborative atmosphere fosters both research and education at all levels of graduate study.

Requirements for the Ph.D. degree include a qualifying exam based on the first two years of course work and a preliminary exam based on initial and proposed thesis research. The M.S. degree requires course work and usually takes two years to complete. Many major corporations regularly visit the department to describe their work and to recruit graduating students.

Research Facilities

A large array of sophisticated computer hardware supports both research and instruction. All supported graduate students have their own high-performance workstation on their desk. Total computing power of the approximately 400 departmental machines is over 4,600 million instructions per second, with over 5,100 megabytes of memory and 120 gigabytes of disk space. Parallel computing facilities include a Thinking Machines CM5 parallel supercomputer, two Sequent Symmetry shared-memory multiprocessors, an Intel IPSC-2 Hypercube, and an Aspex Pipe image processor. Distributed computing using networked workstations is also available.

Financial Aid

Almost all full-time graduate students are supported by a departmental assistantship or fellowship. Aproximately fifteen fellowships are offered each year. Most of the other new students receive teaching assistantships, with a guarantee of support up to four years.

Cost of Study

Tuition for 1991-92 was $1512 per semester for students with assistantships. For others, in-state tuition was $1512 per semester, and the nonresident tuition was $4543 per semester.

Cost of Living

In addition to dormitories, University-operated one and two-bedroom apartments are available for married students, costing $250-$350 per month. Off-campus housing is abundant and relatively inexpensive.

Student Group

The department has about 250 graduate students, with about 60 new students entering each year. About fifteen Ph.D. degrees and sixty M.S. degrees are awarded each year. Graduates go on to both academic and industrial careers.

Location

Built on an isthmus between two large lakes, Madison - the state capital of Wisconsin - has a population of more than 180,000. Madison offers a rich cultural life, an excellent public transportation system, and other amenities usually associated with much larger cities. The area is a four-season display of beauty, encouraging recreational activities such as sailing, bicycling, hiking, and skiing. The campus extends 1 1/2 miles along the shores of Lake Mendota, covering over 900 acres. The University has over 100 sailboats at its docks next to the student union.

The University and The Department

Founded in 1849 as a public, land-grant institution, the University was built on a hill overlooking the state capitol building and three lakes. There are 130 departments, making it one of the most comprehensive universities in the nation. The University is consistently rated as one of the top ten research universities in the country; it ranked fourth in a recent National Academy of Science study of research-doctorate institutions, and it ranks third in total research spending.

The department was formed in 1963 and has grown steadily in both size and stature. The faculty have received numerous grants and awards for their excellence in research and teaching. For example, 12 faculty members have received the prestigious Presidential Young Investigator award from the National Science Foundation, 2 have received Packard Fellowships, 1 recieved an NSF Faculty Award for Women Scientists and Engineers, 3 received ACM doctoral dissertation awards, and 3 have been given IBM Faculty Development Awards. The department also has a large NSF-sponsored institutional infrastructure grant for equipment and research in parallel computing. Research funding for 1990-91 was over $5.7-million, supporting over fifty grants and contracts. About 70 graduate students are supported on these grants as research assistants.

Applying

Applications for admission and all supporting materials must be received by January 15. No distinction is made at admission time between M.S. and Ph.D. applicants. Applicants must take both the GRE General Test and the GRE Subject Test in any area. Although applicants need not have pursued an undergraduate major in computer science, significant related course work is expected.

Correspondence and Information

Graduate Admissions
Department of Computer Sciences
1210 West Dayton Street
University of Wisconsin
Madison, WI 53706

Telephone: 608-262-1204
e-mail: admissions@cs.wisc.edu

Eric Bach, Associate Professor of Computer Sciences; Ph.D., Berkeley, 1984. Theoretical computer science, computational number theory, algebraic algorithms, complexity theory, cryptography

Carl (-W. R.) de Boor, Steenbock Professor of Mathematical Sciences; Ph.D., Michigan, 1966. Approximation theory, numerical analysis

Michael J. Carey, Professor of Computer Sciences; Ph.D., Berkeley, 1983. Database management systems, parallel and distributed computing, applied performance evaluation

Anne Condon, Assistant Professor of Computer Sciences; Ph.D., Washington, 1987. Complexity theory, randomized complexity classes, multi-person protocols, theory of distributed computation

Edouard J. Desautels, Professor of Computer Sciences; Ph.D., Purdue, 1969. Systems programming, personal computer systems and applications

David J. DeWitt, Professor of Computer Sciences and Romnes Fellow; Ph.D., Michigan, 1976. Database management systems, computer architecture

Charles R. Dyer, Professor and Chair of Computer Sciences; Ph.D., Maryland, 1979. Computer vision, robotics, visualization

Michael C. Ferris, Assistant Professor of Computer Sciences and Industrial Engineering; Ph.D., Cambridge, 1989. Theory, algorithms, and applications of mathematical programming

Charles N. Fischer, Professor of Computer Sciences; Ph.D., Cornell, 1974. Compiler theory and design, interactive program development environments, automatic code generation

Donald R. Fitzwater, Associate Professor of Computer Sciences; Ph.D., Iowa State, 1958. Science of design, distributed system design methodology, operating systems

James R. Goodman, Professor of Computer Sciences and Electrical and Computer Engineering; Ph.D., Berkeley, 1980. Computer architecture, large-scale computing, parallel computing, shared-memory multiprocessors

Mark D. Hill, Assistant Professor of Computer Sciences and Electrical and Computer Engineering; Ph.D., Berkeley, 1987. Computer architecture, parallel computing, memory systems, performance evaluation

Susan Horwitz, Associate Professor of Computer Sciences; Ph.D., Cornell, 1985. Software development environments, language-based tools, static analysis of programs, automatic program integration

Yannis E. Ioannidis, Assistant Professor of Computer Sciences; Ph.D., Berkeley, 1986. Database management systems, complex query optimization, heterogeneous scientific databases, user interfaces, deductive databases

Deborah A. Joseph, Associate Professor of Computer Sciences and Mathematics; Ph.D., Purdue, 1981. Structural and applied complexity theory, computational geometry, movement problems in robotics, mathematical logic, computational biology

Sheldon Klein, Professor of Computer Sciences and Linguistics; Ph.D., Berkeley, 1963. Archaeology of cognition, simulation of language transmission and language change, language understanding and generation in the context of knowledge structures

Kenneth Kunen, Professor of Computer Sciences and Mathematics; Ph.D., Stanford , 1968. Mathematical logic, logic programming, automated deduction

Lawrence H. Landweber, Professor of Computer Sciences; Ph.D., Purdue, 1967. Computer networks and protocols, electronic mail

James R. Larus, Assistant Professor of Computer Sciences; Ph.D., Berkeley, 1989. Programming languages, parallel languages, compilers

Miron Livny, Associate Professor of Computer Sciences; Ph.D., Weizmann, 1984. Resource management algorithms, performance modeling and analysis, discrete event simulation

Olvi L. Mangasarian, John von Neumann Professor of Mathematics and Computer Sciences,; Ph.D., Harvard, 1959. Mathematical programming, pattern recognition

Robert R. Meyer, Professor of Computer Sciences and Industrial Engineering; Ph.D., Wisconsin, 1968. Linear and nonlinear network optimization, parallel algorithms for large-scale optimization

Barton P. Miller, Associate Professor of Computer Sciences; Ph.D., Berkeley, 1984. Distributed systems, parallel and distributed debugging, parallel program performance tools, network management and name services, user interface design

Jeffrey F. Naughton, Assistant Professor of Computer Sciences; Ph.D., Stanford, 1987. Query cost estimation, parallel database systems, logic-based database query languages

Seymour V. Parter, Professor of Computer Sciences and Mathematics; Ph.D., NYU, 1958. Numerical methods for partial differential equations

Raghu Ramakrishnan, Assistant Professor of Computer Sciences; Ph.D., Texas, 1987. Declarative database programming languages

Thomas Reps, Associate Professor of Computer Sciences; Ph.D., Cornell, 1982. Programming languages, language-based programming environments

Stephen M. Robinson, Professor of Computer Sciences and Industrial Engineering; Ph.D., Wisconsin, 1971. Operations research, management science

Amos Ron, Assistant Professor of Computer Sciences and Mathematics; Ph.D., Tel Aviv, 1987. Approximation theory, spline theory, wavelets, polynomial interpolation

Jude W. Shavlik, Assistant Professor of Computer Sciences; Ph.D., Illinois, 1988. Machine learning, neural networks, artificial intelligence, computational biology, cognitive science

Gurindar S. Sohi, Associate Professor of Computer Sciences and Electrical and Computer Engineering; Ph.D., Illinois, 1985. Supercomputer architecture, fine-grained parallel architectures, large-scale shared-memory multiprocessors, synchronization, memory systems

Marvin H. Solomon, Professor of Computer Sciences of Computer Sciences; Ph.D., Cornell, 1977. Distributed operating systems, computer networks, program development systems, programming languages

John C. Strikwerda, Associate Professor of Computer Sciences; Ph.D., Stanford, 1976. Numerical analysis, scientific computing, applied mathematics

Prasoon Tiwari, Assistant Professor of Computer Sciences; Ph.D., Illinois, 1986. Theoretical computer science, computational algebra, numeric algorithms, parallel computation

Larry E. Travis, Professor of Computer Sciences; Ph.D., UCLA, 1966. Mechanization of deduction, expert systems, non-procedural knowledge representation, philosophical foundations of artificial intelligence, computing management, social implications of computing

Leonard M. Uhr, Professor of Computer Sciences; Ph.D., Michigan, 1957. Pattern perception, learning, integrated holistic systems, models of intelligence, algorithm-structured multicomputer architectures

Mary K. Vernon, Associate Professor of Computer Sciences; Ph.D., UCLA, 1983. Techniques and applications for computer systems performance analysis, performance of parallel systems, multiprocessor architectures and operating systems, conceptual models of parallel computing

David A. Wood, Assistant Professor of Computer Sciences; Ph.D., Berkeley, 1990. Computer architecture, performance evaluation, parallel processing and debugging, VLSI design