Computer Science

Central to a world-class technological University in the 21st Century are strong educational and research programs in computing and information sciences and engineering. The Department of Computer Science aims to be the key player in providing this central role in the continued growth of Michigan Tech as a premier research university. Computing and information sciences have transformed our lives and our world and will continue to for the foreseeable future.

Faculty

The core of a premier department is its faculty. One-third of our faculty members have received prestigious NSF CAREER Awards or Research Initiation Awards. One faculty member has directed a $1.2 million project funded by the Department of Defense. Faculty members continue to innovate in the classroom. Visualization software developed in the Department is being used in first-year through senior level classes. Innovations and knowledge discovery in computer architecture, compilers, distributed systems, human-computer interaction, networking, parallel computing, planning systems, and software engineering are happening on a daily basis.

Research

The Department has a long history of successful research programs in the systems areas and in visualization-based educational software. Other areas of focus include software engineering, artificial intelligence and human-computer interaction. The Department will continue to pursue core disciplinary studies which are essential to the fundamental growth of the discipline and will have major impact on a wide range of applications. Fundamental design changes in computer processors currently under study in the Department will potentially impact nearly all computer applications; a new programming paradigm and language for parallel computing allows previously unsolvable problems to be parallelized and hence become solvable.

Based on the knowledge that computing and information sciences are now relevant to all academic disciplines, an increasing emphasis is being placed on interdisciplinary projects. Some of the current interdisciplinary projects are with faculty members from the Department of Humanities on integrating communication and documentation techniques into an undergraduate software engineering curriculum, with a psychology faculty member on human factors and human-computer interaction research, with electrical and computer engineering faculty on sensor networks. Within 10 years the Department expects to be involved in interdisciplinary projects with all academic units on campus.

Education

The Department has a history of solid educational programs. To remain on the cutting edge constant change is required. The Department now o ers three B.S. degree programs which provide students with a breadth of options included a broad-based computer science degree, a computer systems science degree, and a software engineering degree.

Incoming students appreciate having the flexibility of the three programs and industry continues to appreciate the quality of the education. Graduates were recruited this past year by a range of corporations including Ford Motor Company, IBM, Google, Microsoft, and Parker Hannifin and government agencies such as the Internal Revenue Service and the Department of Defense. The Department's first Computer Science Ph.D. student graduated this academic year with a job in hand as a Research Scientist at Colorado State University. The Department plays a significant role in several cross-disciplinary degree programs including the B.S degree programs in computer engineering, bioinformatics, and cheminformatics and the Computational Science and Engineering Ph.D. degree program.

The Department will continue to offer state-of-the-art educational programs and to play a major role in the current computer intensive degree programs, as well as to design with other academic units additional cross-disciplinary degree programs. The Department will strive to increase the diversity of the student population. At the graduate level we intend to focus on attracting students from a wider range of undergraduate institutions. At the undergraduate level we will attract more underrepresented students. To do this the Department will identify and implement educational programs that will appeal to a more diverse student population.

Students

We have consistently attracted strong students at both the undergraduate and graduate level. One of our Ph.D. students was the first Michigan Tech student to receive a Harriet G. Jenkins NASA Fellowship. This year our students received the two top honors awarded by the Graduate Student Council. We had a team of students compete in the World Final Programming Contest two years in a row. One of our graduating B.S. degree students was one of six women students ultimately employed by Google from the initial pool of approximately 500 students who applied for Google's Workshop for Women Engineers. Our students frequently receive top honors at the Annual Midwest Instruction and Computing Symposium.

A strength of our educational environment is the diversity of opportunities available to our students outside the classroom. Of particular importance to our students are the many student organizations available to our majors. This past year Zeta Chapter of Upsilon Pi Epsilon, the International Honor Society for the Computing and Information Disciplines was established in the Department and the student group Women in Computing Sciences was reactivated. These student organizations encourage students to achieve more. Organizations such as UPE foster students interest in research and graduate education. Our President of UPE is spending this summer at a NSF REU at the University of California at Santa Cruz.

Facilities

With our new building the Department now has the necessary o ce and laboratory space to substantially increase and diversity our research and educational activities.

Alumni

Our alumni are our markers of success. Included in our alumni are successful entrepreneurs and professionals ranging from software engineers to presidents and chief information o ces in a wide range of industries and governmental agencies.

How You can Help

In order to continue to recruit and retain excellent faculty, the Department needs to be able to provide a stimulating and rewarding work environment. Resources needed include:

Endowed Faculty positions to attract top researchers.
Endowed Visiting positions to bring in guest faculty to stimulate new research collaborations.
Research funds to provide seed money to enable faculty members to obtain preliminary results for external grant proposals.
Lab endowments to ensure state-of-the-art research environments.
Endowed speaker series

In order to attract and retain the best students the Department needs

Fellowships to be competitive in attracting the top students to our graduate programs.
Scholarships to attract and retain top undergraduates.
Funding to support travel to conferences for both undergraduate and graduate students engaged in research.
Student organization support to enable the students to have enriched experiences and opportunities.
Support to fund diversity initiatives.
Funding to provide internal grants to support the development of new educational initiatives.