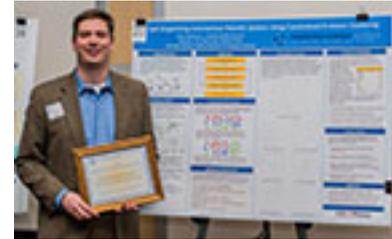


# DEPARTMENT OF COMPUTER SCIENCE



## CS@Mines

### WHY PURSUE A GRADUATE DEGREE IN CS?

- ✓ Be a leader who develops computational innovations that create solutions to problems in a variety of fields.
- ✓ Be part of a community committed to diversity and to improving computer science education.

### ADMISSION

Admission to the graduate degree program is competitive and based on an evaluation of academic performance, test scores, personal statement, and references.

### FUNDING

CS@Mines has multiple Teaching and Research Assistantship openings for PhD students each fall. The TA/RA financial support covers tuition, fees, health insurance and a competitive monthly stipend. Our research is funded by government agencies, such as National Science Foundation (NSF), and by industry leaders.

### ACADEMICS

The graduate program in Computer Science brings together faculty and graduate students with common interests in applying computational power and thinking to the world. The department offers a Master of Science, with thesis and non-thesis options, and a Doctor of Philosophy degree to prepare candidates for exciting and fulfilling careers in industry, government, and academia.

### RESEARCH AREAS

The department is growing rapidly with research-active tenured/tenure-track faculty working in the following areas:

- ALGORITHMS
- ALGORITHMIC ROBOTICS
- AUGMENTED REALITY
- CS FOR ALL
- CYBERSECURITY
- HIGH PERFORMANCE COMPUTING
- MACHINE LEARNING
- NETWORKING

Students address real-world computing problems in research labs and centers, which creates a community for multidisciplinary learning, research and experimentation.

### LEARN MORE

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Graduate Program Manager

 [cs.mines.edu](http://cs.mines.edu)

 **Computer Science**  
Brown Hall Building  
1610 Illinois Street  
Golden, CO 80401



## RESEARCH AREAS

CS @ Mines faculty have a strong emphasis on research both within the department and collaboratively with other departments, universities, government organizations and industry partners. We encourage you to learn more about department research and faculty involvement in compelling research in the field of Computer Science.

### ALGORITHMS

An interdisciplinary research area that applies areas such as VLSI design automation, cheminformatics, computational materials, and cyber-physical systems.

### ALGORITHMIC ROBOTICS

An interdisciplinary research area focusing on integrating computer vision and perception, learning and adaptation, natural language understanding and generation, and decision making and motion generation into unified robotic systems.

### AUGMENTED REALITY

This area focuses on sensing information about the real world, augmenting visualization of reality by overlaying virtual information on the real world, and enabling user to interact with and digitally manipulate the information.

### CS FOR ALL

This area encompasses research on STEM recruitment and diversity, K-12 computing education, and computing/engineering at the university level.

### CYBERSECURITY

Research includes usable security and privacy in web/mobile/cloud/cyber-physical systems, vulnerability measurement and analysis, and security-privacy education.

### HIGH PERFORMANCE COMPUTING

Our high performance computing research focuses on using compiler and runtime techniques to optimize Big Data and machine learning applications on heterogeneous systems.

### MACHINE LEARNING

Includes research in developing mathematical foundations and algorithm design needed for computers to learn.

### NETWORKING

Networking research aims to enable emerging wireless applications via networks and systems support, ranging from hardware design to algorithms development and software integration, from credible simulations to actual system deployment and testing.

### FACULTY SPOTLIGHT: HUA WANG

Associate Professor Hua Wang received an NSF CAREER Award for a research project to create a new machine-learning model for mining various kinds of data that could lead to easier, earlier and less-costly detection of neurological diseases such as Alzheimer's or Parkinson's. The project is titled, "Robust Brain Imaging Genomics Data Mining Framework for Improved Cognitive Health"



Professor Wang will develop algorithms aimed at revealing the relationships between people's genetic information, how their brains appear in scans that measure volume and function and their performances in cognitive tests. "The algorithms can extract information from large amounts of data that cannot be directly analyzed by ourselves," Wang said. The data for this project will come from the Alzheimer's Disease Neuroimaging Initiative, which collects information to share with scientists around the world.

Learn more about Dr. Wang's research at:  
<http://cs.mines.edu/CS-Mines-News>