

What is Computer Engineering?

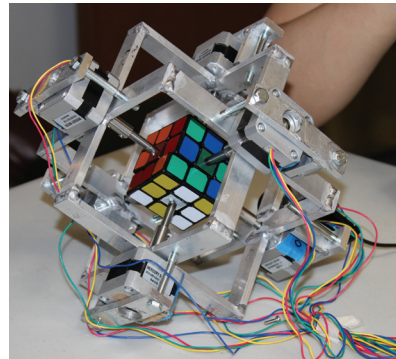
From microcircuits to global networks, the CE program at Michigan helps you to imagine and build the computer systems that will shape our lives. Computer engineers make the Internet faster, create highly integrated systems such as smartphones and electric vehicles, and are always harnessing technology in new, productive, and surprising ways.

The CE curriculum is informed by both industry standards and cutting-edge research, and covers the design and integration of computer chips, sensors, software and firmware for embedded systems, mixed signal circuit boards and sensors, operating systems, and more. The opportunities for impact range from healthcare, entertainment, education, and transportation through scientific research and modeling,

Computer engineering graduates can have careers anywhere there are computers, which is virtually everywhere. Our graduates can be found doing anything from designing controllers embedded in cars up to building the latest hot game. They also go on to professional degrees in business or law, and to lead and advise technology companies from an informed standpoint. If you wish to apply your engineering background to computers and computing systems in the field of your choice, join the ever-expanding field of computer engineering.

My favorite thing about my major is its relevancy to the real world. Everything I learn in computer engineering is used in technology that is helping make the world a better place.

Paul Scott, CE Student



Students created a device to solve the Rubik's Cube in the course, Microprocessor-based Systems.

Life as a CE Student

In addition to having fun in lab classes, computer engineers are active in professional and recreational organizations, participate in a wide variety of student teams, found startup companies, and study abroad.



CE students join other hackers from across the country to create and learn at a U-M Hackathon.

Entrepreneurship and Innovation

Computer engineers are among the engineers most likely to be involved in new startup ventures. To learn more about the opportunities, check out: innovateblue.umich.edu, and the Center for Entrepreneurship.

Multidisciplinary Student Teams

Many CE students participate in student teams that design and build systems to compete in national and international competitions. Other teams strive to serve the world-wide community. A few of these teams are Michigan Autonomous Aerial Vehicles, Michigan Hybrid Racing, UM::Autonomy, Solar Car, Mars Rover, BLUElab, E-MAGINE, and M-HEAL.



CE-Related Student Organizations



HKN: Eta Kappa Nu honor society



GEECS: Girls in Electrical Engineering and Computer Science



IEEE: Student professional organization for electrical and computer engineers

Computer Engineering @ Michigan

Department of Electrical Engineering and Computer Science



M Advising Offices:
3415 EECS Bldg., 734-763-2305
2808 Beyster Bldg., 734-763-6563

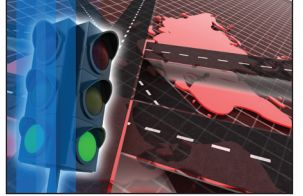
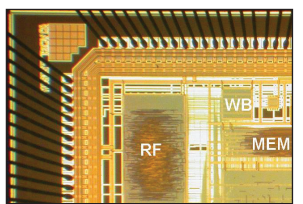
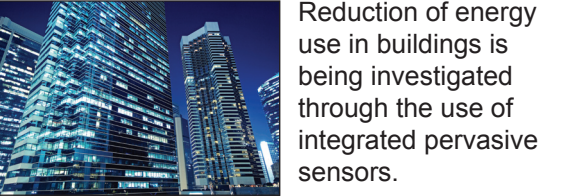
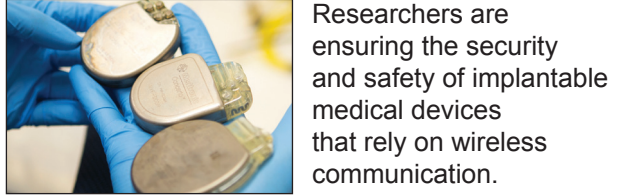
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M MICHIGAN ENGINEERING
UNIVERSITY OF MICHIGAN

Impact and Innovation

Computer engineers are working to improve medical devices, consumer electronics, security, information technology, and transportation safety.



Researchers are ensuring the security and safety of implantable medical devices that rely on wireless communication.

Reduction of energy use in buildings is being investigated through the use of integrated pervasive sensors.

Reliability in extremely small computers is being ensured through innovative, low-cost solutions.

Very low-cost "talking books" are being developed to disseminate information in underdeveloped and remote regions.

Secure communication technologies are being developed that are resistant to monitoring and censorship.

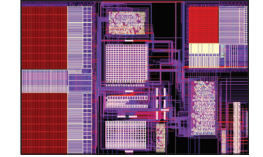
Objects and scenes are being translated into 3D sounds for the visually impaired.

Researchers are improving the safety of our automated transportation systems, such as air traffic control and automotive collision-avoidance systems.

Keith Porter co-founded the company A2B Bikeshare.

Major Design Experience Courses

Computer engineering students will select at least one senior-level major design experience (MDE) course. Here's what you'll be doing in your MDE courses in computer engineering:



VLSI Design (EECS 427)
Design and build the circuits needed to create an entire digital system, such as a microprocessor that will go into a smartphone, wearable tech, or a media player.



Digital Signal Processing (EECS 452)
Design and implement a real-time software package or hardware device. Examples include a low-cost hearing aid, a guitar autotuner, and a wireless electrocardiogram with biosensors.



Autonomous Robotics (EECS 467)
Design and program a robotic system and learn about related topics such as embedded systems, sensors, artificial intelligence, and kinematics.

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Computer Architecture (EECS 470)
Design and build a dynamically scheduled processor while exploring modern computer architecture.



Advanced Embedded Systems (EECS 473)
Design and implement the hardware and software for a modern embedded system. Students design a complete embedded system.

My favorite thing about CE is learning the layers of how a computer works. In each class, you focus on a different level of abstraction of a modern computer such as transistors, medium scale integrated devices, circuitry, memory, etc.

Santos Campos, CE Student

A student shows off her team's final project from the advanced embedded systems class.



Your Future

The Best Education Leads to the Best Jobs



The Computer Engineering program at Michigan is one of the most respected and innovative in the nation, and in 2015 was ranked #7 by U.S. News & World Report. Our students are sought after for high-paying jobs in a wide variety of technical fields.

Where some of our students and alumni can be found:



Great Opportunities

Jobs for computer engineers are projected to remain strong for the foreseeable future (Bureau of Labor Statistics)

Great Rewards

Computer engineering degrees lead to some of the highest salaries in all professions (National Association of Colleges and Employers)

Rebecca Frank interned at Texas Instruments in hardware applications and at Qualcomm as a software engineering intern.

