

# What is Computer Science?

*Computer science is shaping the future. A degree in computer science can help shape yours.*



Michigan CS students created a suite of mobile education apps for use in K-12 classrooms in Singapore.

Computer science is an integral part of our lives, shaping virtually everything from the objects around us to the ways in which we communicate, travel, work, and play. And the computer revolution has just begun – CS is now a key enabler for discovery and innovation in most other fields of endeavor, making it an incredibly relevant course of study.



A student in the CS sound lab experiments with new interfaces and modalities for musical expression.

# Life as a CS Student



Michigan CS students have the opportunity for unique experiences through participation in sponsored events, interdisciplinary student teams, and student organizations.

## Sponsored Events

CS students can hone their skills, have fun, and learn a few tricks while participating in department-sponsored hackathons and programming contests, and at similar events which take place at the U-M level or through corporate-sponsored events.

## Multidisciplinary Student Teams

Many CS students participate in student teams that design and build systems to compete in national and international competitions. Almost always, CS is a critical component for team success. These teams include Michigan Autonomous Aerial Vehicles, UM::Autonomy, U-M Programming, U-M Solar Car, Hybrid Racing, and the Mars Rover Team. Other groups that advance societal good also need CS students, including BLUELab, E-MAGINE, and M-HEAL.

## CS Student Organizations



**Michigan Hackers:**  
Experimenting with technology



**gEECS:** Girls in electrical engineering and computer science



**HKN:** Eta Kappa Nu honor society



**Wolverine Soft:**  
Video game development



**MSAIL:** Artificial intelligence group



**CSE Scholars:** Students promoting the field of CS

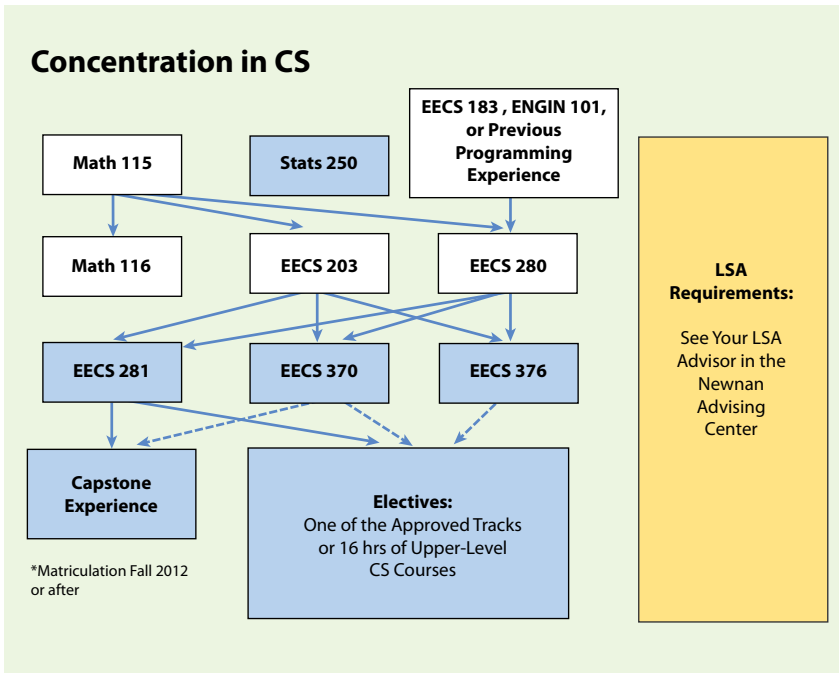
# Computer Science @ Michigan



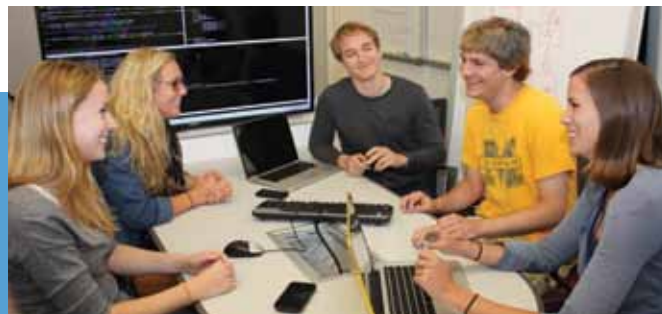
# Programs in Computer Science

## Concentration in Computer Science

Gain the knowledge to solve big problems in new ways! With a Bachelor's degree in Computer Science, you'll be ready to make an impact in health care, entertainment, business, the performing arts, education, transportation, the environment — or virtually any other part of your world. Completing a CS concentration generally requires about five pre-concentration courses and nine concentration courses.



**Legend**  
 [White Box] Pre-concentration    [Blue Arrow] Enforced Prerequisites  
 [Blue Box] Concentration    [Dashed Blue Arrow] Prerequisite for Some



CS students collaborate on a project as part of their Capstone Experience course.

# Innovative Tracks of Study



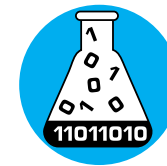
**Artificial Intelligence:** Learn the fundamentals of AI through theoretical, experimental, and applied investigations of intelligent systems.



**Security:** Learn concepts and practices for secure hardware and software design, modern cryptography, and critical security applications.



**Bioinformatics:** Advance your future as a biotech scientist who participates in biological research and development.



**Software Development:** Gain the ability to analyze, design, test, and maintain large software systems and the team skills needed to engage in these efforts.



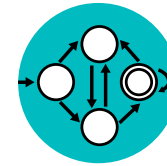
**Data and Information:** Meet the challenges of "big data" via information management and through database design and implementation.



**Software Systems:** Tackle the challenges associated with creating operating systems, compilers, database systems, and networks.



**Economics and Computation:** Build your capability to think economically about computation, and computationally about economics and markets.



**Theory of Computation:** Gain the rigorous mathematical training applicable to a variety of current and emerging computing challenges.



**Robotics and Vision:** Learn the fundamentals of using robots as mobile information gathering and decision making platforms.



Students are helping to build intelligent robot systems for search and rescue.

# Future Outlook



## Entrepreneurship

Computer science students are uniquely empowered to launch new ventures with the potential to transform industries and lives. You'll find student groups and campus resources that can help get your startup off the ground, including the Center for Entrepreneurship, the TechArb incubator, and MPowered. A CS degree, the connections you develop at U-M, and the assistance offered through these programs all help you in realizing your dream.

## Companies Hiring Recent Grads:

- |                          |                          |
|--------------------------|--------------------------|
| 2K Sports                | General Electric         |
| Amazon                   | Google                   |
| Apple Inc.               | Hewlett Packard          |
| Arbor Networks           | Hooklogic                |
| Are You A Human?         | IBM                      |
| Autodesk, Inc.           | Intel Corporation        |
| Barclays Capital         | Intrepid Control Systems |
| Barracuda Networks       | JP Morgan Chase          |
| Blackrock                | Lockheed Martin          |
| Bloomberg                | McKinsey & Company       |
| Boeing                   | Microsoft Corporation    |
| Bosch                    | Morningstar, Inc.        |
| Cardinal Health          | MyBuys                   |
| Cisco Systems            | New World Systems        |
| Disney                   | Orbitz Worldwide         |
| Dow Chemical USA         | PEAK6 Investment L.P.    |
| DreamWorks               | Sega of Japan            |
| DRW Trading Group        | Tecore, Inc              |
| Duo Security             | Toyota                   |
| Electronic Arts (EA)     | Twitter                  |
| eyeWyre Software Studios | University of Michigan   |
| Epic                     | US Air Force             |
| Facebook                 | Zynga                    |
| Ford Motor Company       | ... and many others      |

## CS Grads Get Jobs!

Computer Science is a growing, exciting field that is an integral part of virtually every field of study. Computer scientists are in high demand, are well paid, and have enormous opportunity for societal impact. CS occupations are projected to account for nearly 60% of all job growth between 2012 and 2018!

Michigan CS graduates are highly sought after, and our students often have multiple job offers by the time they graduate.

### Full-Time Positions — Median annual salaries (2011)

- \$74,000 (with Bachelor's)
- \$90,000 (with Master's)

### Internships — Median monthly pay (2011)

- \$4,900 (during undergrad)
- \$6,000 (during Master's)

These student entrepreneurs created an app, now publicly available, to encrypt text messages for all but the intended recipient.

