Computer Science (Media Arts and Sciences), PhD

ESAMECSPHD

This program's name has changed effective Fall 2024. The previous name was Computer Science (Arts, Media and Engineering)..

Are you both an artist and an engineer at heart? You can develop these aspects simultaneously and become an imaginative, knowledgeable, skilled and responsible creative expert in media development, ready to apply yourself in any of a variety of fields and professions.

Program description

Degree awarded: PHD Computer Science (Arts, Media and Engineering)
The PhD program in computer science with a concentration in media arts and sciences emphasizes research on the integration of the human physical experience with computation and digital media. Media arts and sciences researchers produce experiential media systems and models that assist the disadvantaged, empower creativity, enhance scientific discovery, evolve human ability, facilitate learning and improve quality of life. Within these application areas, researchers explore experiential construction, interaction and feedback, knowledge creation, sensing, perception and modeling.

The program's purpose is to train hybrid engineering-arts students who get their inspiration from the arts and their methodology from computer science and engineering. Students specialize in transdisciplinary media development. More information about the media arts and sciences concentration can be found on the School of Arts, Media and Engineering website.

At a glance

- **College/School:** Ira A. Fulton Schools of Engineering

- **Location:** Tempe

Degree requirements

84 credit hours, a written comprehensive exam, an oral comprehensive exam, a prospectus and a dissertation

Required Core Areas (9 credit hours)
foundations (3)
systems (3)
applications (3)

Depth (3 credit hours)
three additional credit hours in one core area (3)

Concentration (9 credit hours)
Select three courses from the following list:
AME 511 Advanced Interactive Sound (3)
AME 515 Machine Vision and Pattern Recognition (3)
AME 520 Movement and Computing (3)
AME 532 Creating Interactive Media (3)
AME 535 Mobile Development (3)
AME 570 Programming for Social and Interactive Media (3)

Research (18 credit hours)
AME 792 Research (6)
CSE 792 Research (12)

Electives (33 credit hours)

Culminating Experience (12 credit hours)
AME 799 Dissertation (6)
CSE 799 Dissertation (6)

Additional Curriculum Information
Courses that are used to satisfy the core area requirement cannot be used to satisfy electives or other requirements. A grade of "B" or better is required for core courses.

12 credit hours of CSE 792 Research and six credit hours of AME 792 are required, and up to 51 credit hours are allowed on the plan of study. Students with research credit hours in excess of 18 add these credit hours to their electives and additional research.

Electives include:

- additional CSE 792 Research credit hours (up to 33 credit hours allowed beyond the required 18)

- computer science courses, of which up to 18 credit hours of CSE 590 and CSE 790 Reading and Conference is allowed

When approved by the academic unit and the Graduate College, this program allows 30 credit hours from a previously awarded master's degree to be used for this degree.

A maximum of three credit hours of 400-level coursework may be applied to the plan of study.

Admission requirements

Applicants must fulfill the requirements of both the Graduate College and the Ira A. Fulton Schools of Engineering.

Applicants are eligible to apply to the program if they have earned a bachelor's degree in computer science, computer engineering or a closely related area. Most applicants should have earned a master's degree, but exceptional undergraduate applicants may be admitted directly into the doctoral program.

Applicants must have a minimum cumulative GPA of 3.50 (scale is 4.00 = "A" in the last 60 hours of their first bachelor's degree program, or applicants must have a minimum cumulative GPA of 3.50 (scale is 4.00 = "A") in an applicable master's degree program.

All applicants must submit:

1. graduate admission application and application fee
2. official transcripts from every university attended
3. three letters of recommendation
4. a statement of purpose
5. curriculum vitae or resume
6. proof of English proficiency

Additional Application Information
An applicant whose native language is not English must provide proof of English proficiency regardless of their current residency.

The statement of purpose must fulfill any requirements defined by the Graduate College and also address the transdisciplinary nature of the media arts and sciences program. Applicants should explain in a concise and persuasive manner how their educational, professional and personal experiences inform their research and creative interests, writing on any aspect of their background that supports candidacy to the program. Further information on how this statement can be expanded upon by students interested in a research assistantship or an Integrative Graduate Education and Research Traineeship within media arts and sciences is available from the department. Students should submit a current curriculum vitae with the statement of purpose.

GRE scores are optional.

Students assigned any deficiency coursework upon admission must complete those classes with a grade of "C" (scale is 4.00 = "A") or higher within two semesters of admission to the program. Deficiency courses commonly taken include:

CSE 230 Computer Organization and Assembly Language Programming
CSE 310 Data Structures and Algorithms
CSE 330 Operating Systems
CSE 340 Principles of Programming Languages or CSE 355 Introduction to Theoretical Computer Science

The applicant's undergraduate GPA and depth of preparation in computer science and engineering are the primary factors affecting admission.

Tuition information

When it comes to paying for higher education, everyone's situation is different. Students can learn about [ASU tuition and financial aid](#) options to find out which will work best for them.

Application deadlines

Fall

Spring   [expand](#)

                    [expand](#)

Career opportunities

Graduates who have received the doctorate in computer science with the media arts and sciences concentration are able to analyze, understand and apply key theories and algorithms used in the field of computer science. They are also able to generate and evaluate new theories, algorithms and software modules that can advance the field of computer science.

Career examples include:

- arts, media and engineering professor or researcher
- computer science professor or researcher
- data scientist or engineer
- machine learning, AI or computer vision engineer or scientist

Contact information

[Computer Science and Engineering Program](#) | CTRPT 105
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