Computer Science (Art, Media and Engineering), PhD

ESAMECSPHD

Program Description

**Degree Awarded: PHD Computer Science (Arts, Media and Engineering)**

The PhD program in computer science with a concentration in arts, media and engineering emphasizes research on the integration of the human physical experience with computation and digital media. Arts, media and engineering 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 purpose of the arts, media and engineering concentration is to train hybrid engineering-arts graduates who get their inspiration from the arts and their methodology from computer science and engineering. Students specialize in transdisciplinary media development. More information about arts, media and engineering can be found at [https://artsmediaengineering.asu.edu/](https://artsmediaengineering.asu.edu/).

At a Glance

- **College/School:** [Ira A. Fulton Schools of Engineering](https://engineering.asu.edu/)
- **Location:** [Tempe campus](https://www.asu.edu/)

Degree Requirements

84 credit hours, a written comprehensive exam, an oral comprehensive exam, a prospectus and a dissertation
Required Core Areas (15 credit hours)
architecture and networked systems (3)
data and information systems (3)
foundations of computation and algorithms (3)
intelligent and interactive systems (3)
software and information assurance (3)

Depth (6 credit hours)
six additional credit hours in one core area (6)

Concentration (9 credit hours)
Select three courses from the following list:
AME 515 Machine Vision and Pattern Recognition (3)
AME 520 Understanding Activity (3)
AME 532 Media Synthesis (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 (24 credit hours)

Culminating Experience (12 credit hours)
AME 799 Dissertation (6) and
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.

For electives, students choose computer science courses which may include up to 18 credit hours of CSE 590 and CSE 790 Reading and Conference.

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 six 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. scores for the GRE
4. three letters of recommendation
5. a statement of purpose
6. curriculum vitae or resume
7. proof of English proficiency

**Additional Application Information**

An applicant whose native language is not English must provide proof of English proficiency regardless of current residency: [https://admission.asu.edu/international/graduate/english-proficiency](https://admission.asu.edu/international/graduate/english-proficiency).

If the student has graduated with an undergraduate degree in computer science or computer systems engineering from ASU, GRE scores are not required.

The statement of purpose must fulfill any requirements defined by the Graduate College and also address the transdisciplinary nature of the arts, media and engineering 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 arts, media and engineering is available from the department. Students should submit a current curriculum vita with the statement of purpose.

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

Fall
Spring

Career Opportunities

Graduates who receive the doctorate in computer science with the arts, media and engineering 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
- arts, media and engineering researcher
- computer science professor
- computer science researcher
- data scientist or engineer
- machine learning, AI or computer vision engineer
- machine learning, AI or computer vision scientist

Contact Information

Computer Science and Engineering Program | CTRPT 105
cidse.advising@asu.edu | 480-965-3199
Admission Deadlines