COMPUTING AND THE ARTS

Director of undergraduate studies: Scott Petersen (scott.petersen@yale.edu)

Computing and the Arts is an interdepartmental major designed for students who wish to integrate work in computing with work in one of five arts disciplines: architecture, art, history of art, music, or theater studies.

For students with a computing perspective, issues in these disciplines present interesting and substantive problems: how musicians use computers to compose; the limitations of current software tools used by artists; the types of analyses done by art historians; challenges in designing and using virtual sets in the theater; ways that virtual worlds might help to envision new forms of artistic expression; and lessons that can be learned from trying to create a robotic conductor or performer.

For students with an artistic perspective, computing methods offer a systematic approach to achieving their vision. A foundation in computer science allows artists to understand existing computing tools more comprehensively and to use them more effectively. Furthermore, it gives them insight into what fundamentally can and cannot be done with computers, so they can anticipate the future development of new tools for computing in their field.

PREREQUISITES

The prerequisite for all students in the major is either CPSC 100 or CPSC 112, which should be taken during the first year. There are two additional prerequisites for the Art concentration, ART 111 and 114. There are two additional prerequisites for the Theater, Dance, and Performance Studies concentration, THST 110 and 111. There are no additional prerequisites for the Architecture, History of Art, or Music concentrations. There is no required favorable review of studio work for admission to the major in any concentration, but a sophomore review advising session is required for the Art concentration.

REQUIREMENTS OF THE MAJOR

Twelve term courses are required beyond the prerequisites, not including the two-term senior project. Six of the courses must be in Computer Science, including CPSC 201, 202, and 223. Students are advised to complete CPSC 202 and 223 by the end of the sophomore year. MATH 244 may be substituted for CPSC 202. The six remaining courses are selected from one of the arts disciplines. Students choose a concentration in architecture, art, history of art, music, or theater, dance, and performance studies. All requirements for a single concentration must be satisfied, as specified below.

The Architecture concentration requires the following courses in addition to the Computer Science courses listed above: (1) ARCH 150 and 200; (2) two courses from ARCH 260, 312, 360, and 362; (3) two elective courses from either of the two Architecture specific concentrations: Design; or History, Theory, Criticism of Architecture, and Urbanism; (4) two courses from CPSC 376, 437, 446, 451, 475, 478, 479, or 484; and (5) one additional intermediate or advanced CPSC course (excluding CPSC 490).

The Art concentration requires the following courses in addition to the Computer Science courses listed above, as well as a sophomore review at the School of Art: (1) two 100-

level courses beyond ART 111 and 114, such as ART 132 and/or 184 or 185; (2) two courses in Art at the 200 or 300 level, such as ART 285 and/or 370; (3) ART 395; 4) one course in Art at the 400 level, such as ART 495; (5) two courses selected from CPSC 376, 437, 446, 451, 475, 478, 479, or 484; (6) one additional intermediate or advanced Computer Science course (excluding CPSC 490). Seniors following the art concentration will have access to a shared studio and many facilities in the School of Art.

The History of Art concentration requires the following courses in addition to the Computer Science courses listed above: (1) one introductory, 100-level, History of Art course; (2) two History of Art courses at the 200, 300, or 400 level (the courses must represent two different areas as defined in the History of Art program description); (3) one studio art course (students may need to take a prerequisite course in Art to prepare for the studio course); (4) HSAR 401; (5) one 400-level seminar in History of Art; (6) two courses selected from CPSC 376, 437, 451, 475, 478, or 479, one of which must be CPSC 478 or 479; (7) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

The Music concentration requires the following courses in addition to the Computer Science courses listed above: (1) two courses from *Group I* (Music Theory); (2) three additional courses from *Group I* or *Group II* (Creative Practices); (3) one course from *Group III* (Western Art Music) or *Group IV* (World and Popular Music); (4) CPSC 431; (5) CPSC 432; (6) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

The Theater, Dance, and Performance Studies concentration requires the following courses in addition to the prerequisites and Computer Science courses listed above: (1) one course in the Artistic Practice domain; (2) one course in the Histories domain; (3) one course in the Performance Theory domain; (4) one course in the Interarts domain; (5) two additional courses in any of the domains; (6) CPSC 431 or 432; (7) CPSC 478, 479, or 484; (8) one additional intermediate or advanced Computer Science course (excluding CPSC 490).

Credit/D/Fail Courses taken Credit/D/Fail may not be counted toward the major.

Searchable attributes: YC CPAR: ARCH CS Elective; YC CPAR: ART CS Elective, YC CPAR: HSAR CS Elective, YC CPAR: MUSI Elective, YC CPAR: THST CS Elective

SENIOR REQUIREMENT

The senior project requires two terms: one term of CPSC 490, and one term of ARCH 491, ART 496, HSAR 499, one from MUSI 496–499, or one from THST 471, 491 or 492, depending on the concentration chosen. The project must be approved by the DUS and be acceptable to both departments. Students must submit a written report, including an electronic abstract and webpage(s).

ADVISING AND APPROVAL OF PROGRAM

The entire program of each student majoring in Computing and the Arts must be approved by the DUS.

SUMMARY OF MAJOR REQUIREMENTS

Prerequisites *All concentrations*—CPSC 100 or CPSC 112; *Art concentration* —ART 111, 114, and sophomore review; *Theater, Dance, and Performance Studies concentration*—THST 110, 111

Number of courses 12 term courses beyond prereqs (not incl senior project)

Specific courses required *All concentrations*—CPSC 201, 202, 223; *Architecture* —ARCH 150, 200; 2 courses from ARCH 260, 312, 360, 362; *Art*—ART 395; *History of Art*—HSAR 401; *Music*—CPSC 431, 432; *Theater, Dance, and Performance Studies*—CPSC 431 or 432; CPSC 478, 479, or 484

Distribution of courses *All concentrations*—3 addtl courses in Comp Sci as specified for each concentration, to incl 1 intermediate or advanced course (excluding CPSC 490); *Architecture*—2 courses from the Architecture specific concentrations, as specified; *Art*— 2 courses in Art at 100 level (excluding prereqs), 2 courses at 200 or 300 level, and 1 at 400 level as specified; *History of Art*—1 intro, 100-level course; 2 courses in different areas of History of Art at 200, 300, or 400 level, as specified; 1 sem at 400-level in History of Art; 1 studio art course; *Music*—2 courses from *Group I* (Music Theory); 3 courses from *Group I* or *Group II* (Creative Practices); (3) one course from *Group III* (Western Art Music) or *Group IV* (World and Popular Music); *Theater, Dance, and Performance Studies*—1 course in each of 4 domains; 2 additional courses in any domain

Substitution permitted MATH 244 for CPSC 202

Senior requirement *All concentrations*—Two-term senior project including CPSC 490, approved by DUS; *Architecture*—ARCH 491; *Art*—ART 496; *History of Art*—HSAR 499; *Music*—one from MUSI 496–499; *Theater, Dance, and Performance Studies*—THST 471, 491 or 492