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Creating an Interdisciplinary Game Development Minor

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Background

Though seen by some as a simple diversion, games are a critical form of play for current and future generations. Where previous generations played tag and war, current youth engage in Bejeweled and Guitar Hero. The experience is meaningful, engaging and often highly social in nature. Games have become part of the fabric of contemporary western society.
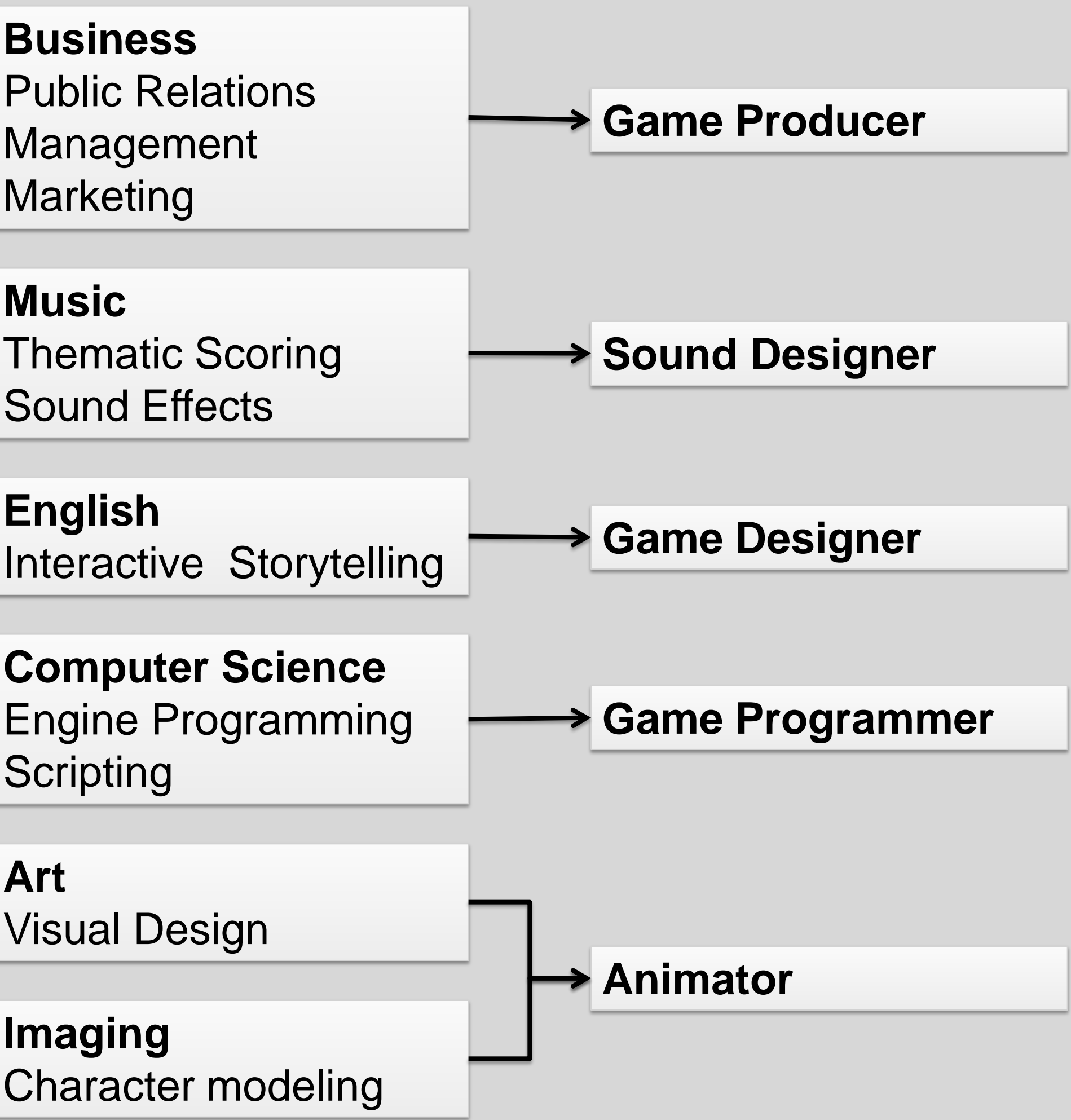
Programs

As the interest is playing video games has grown, so has the interest in making them. Many an avid game player had dreamed of becoming a game designer, programmer or artist. In support of this interest, academic programs for game development have been created at a number of leading universities, including the University of Southern California, Carnegie Mellon, Southern Methodist University and Indiana University to name just a few. Many of these programs have achieved large enrollments in short periods of time. For example, Champlain College in Burlington, Vermont established a video game design and art program in 2004 with an initial class of 15. By 2008 they had enrolled 220 students and were forced to cap enrollment.

Economics

The video game industry, fueled by the popularity of both stand alone consoles and high-speed internet access, has seen explosive growth over the past 10 years. According to the Entertainment Software Association, software sales in the US alone accounted for $9.5 billion in revenue, up from $7.4 billion in 2006. The introduction of three new console systems over the past two years has driven total video game revenue to $17.9 billion in 2007. Estimates of global revenue in 2008 range as high as $40 billion, with projected 2009 figures as high as $57 billion.

While the economy has slumped, games have remained largely recession-proof. Game revenue in February jumped 9%, and game console sales jumped 11% even as the economy continued to slide.

Contributing Disciplines

Business
Public Relations
Management
Marketing → **Game Producer**

Music
Thematic Scoring
Sound Effects → **Sound Designer**

English
Interactive Storytelling → **Game Designer**

Computer Science
Engine Programming
Scripting → **Game Programmer**

Art
Visual Design

Imaging
Character modeling → **Animator**

Game Production is inherently multidisciplinary in nature and requires all members of a game development team have an in-depth understanding of at least one of the core disciplines, while simultaneously having an ability to communicate and effectively collaborate with development team members who come from other specialization areas.

Example: Computer Science and Game Programmers

The need for a solid understanding of the field is reiterated annually at both the Game Developer Conference and the Academic Days on Gaming conference. Each year one of the major game developers such as Electronic Arts, Garage Games or Microsoft Game Studios presents a list of topics they would like to see in new game programming graduates which covers the all of the standard areas of computer science. The repetition has led the CS department to develop a brief outline for our incoming students which describes how each course in our curriculum will help the student become a game programmer. In addition, we have a 5000 level course in game programming offering an integrative experience in applied game programming.

At the same time, CS students are very weak in several core areas of video game development. They generally are (with a few exceptions) poor artists, storytellers and musicians. They generally are highly protective of their code and are not used to public reviews of their work.

Current Courses

There are currently two game-specific courses offered at WMU – "CS 5410, Game Programming" and "HNRS 2900 – 155, Video Game Design". The former course focuses on the game engine programming and is targeted towards the senior level computer science student as a integrative, capstone experience. The latter course is being offered for the first time to students enrolled in the honors college and focuses on the design aspects of games.

CS 5410 will be taught for the first time during Summer I. The material in the course has been taught three times under the "CS 5950 – Topics in Computer Science", with the latest offering occurring during the Fall 2007 semester. There has been considerable student interest in the course, but as a capstone CS course, it is only open to a very limited number of students. The students in the Fall 2007 offering of this course have subsequently founded a registered student organization (Red Button Games) devoted to the design, development and implementation of games. Students taking this course have also continued to pursue the topic in an academic setting – at this point there is at least one Honors College Thesis and two independent study projects underway by students enrolled in the course during the fall semester.

HNRS 2900 – 155 was created on the heels of the Digital Media Innovation Grant as a way to get more students involved in advanced digital media technology. The course was designed as an intensive introduction, covering aspects of video game design, programming and art production. The course will be repeated in Fall 2008, and in Spring 2009 there may either be an "Advanced Game Design" course or a "3D graphics for Games" course. In Fall 2008 there may also be an independent study project following on this course. Students taking the course have been highly motivated and enthusiastic.

Needs

Students with a solid understanding of one of the core disciplines need exposure and experience collaborating with individuals from the other disciplines. They need a core understanding of the technology, vocabulary and common practice from each discipline to be able to effectively communicate and collaborate.

Students also need experience working on team projects with individuals who are not in their core area – computer scientists need to interact with musicians and storytellers, who need to interact with public relations and marketing, etc…

A minor in game Development

A minor in game development would consist of six to eight introductory courses, each from a different department emphasizing core concepts of the discipline with a focus on how discipline topics relate to game design.

Each participating department could use an existing course to meet the requirement, with the only addition being the utilization of game-oriented examples or assignments. If desired, a department could also create a new course oriented towards game development careers.

Ideally, the minor gaming course would have very limited or no prerequisites and have only loose coupling to other gaming courses, allowing a student to enroll in the courses of the minor in arbitrary order.

There is an expectation that a student who earns a minor in game development to major in one of the core areas of gaming. At the same time, it would be optimal if the

Structuring our program as a minor allows:
- •Minimal additional faculty resources, with most programs modifying existing courses to focus on gaming

- •Retention or expansion of current enrollments, since students earning a minor in games would still major in one of the core disciplines

Current status

Members of several departments have expressed an interest in participating in the minor, but we are still gathering collaborators and discussing the structure and content of courses in the minor.

As we proceed towards developing and proposing a minor, we would like input and assistance from as many departments and individuals as possible. If you or some member of your department would be interested in participating, please contact Dr. Karlis Kaugars.

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