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|  | **LMC-8823 Special Topics in Game Design and Analysis** |

**1. Instructor Name, Contact Information and Office Hours**

Instructor: Ian Bogost

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Phone:

Office: TSRB 320

Meetings by Appointment

**2. Course Prerequisites:**(None)

**3. Core Area/Attributes Fulfilled by this Class:** (None)

**4. Course Description**

In this intensive seminar, we will explore every aspect of the Atari VCS (2600), the most important early home videogame console. Based on a critical-technical practice Nick Montfort and I call platform studies, we will investigate the way the Atari VCS influenced games and game design through a thorough analysis of its technical properties.

In addition to learning about its history and its games, students will learn about the hardware design of this very weird computer, including the 6502/6507 processor and TIA graphics and sound chip.

In tandem, we will investigate two key artistic practices that relate to early console systems and contemporary design issues alike: *hacks and demakes*, along with the latter's associated concept of the *remake*.

**Hacks** are works produced by making modifications to existing games by disassembling binaries, analyzing the meaning and purpose of the resulting source code, identifying desirable changes (whether slight or significant) and implementing those changes.

**Remakes** are recreations of earlier works, irrespective of the hardware platform of original creation or recreation. Remakes have a long history in other media, particularly in film and television, as well as in commercial videogames.

**Demakes** are retro-inspired reimaginings of modern games, as if they had been created on earlier hardware. Demakes are not necessarily created to run on older machines, but their design and behavior are constrained by the real or perceived constraints of vintage systems.

All three practices offer provocative examples of video game art, as well as interesting frameworks for learning to critique and program a machine like the Atari VCS. We will explore numerous examples of hacks, remakes, and demakes, on and off the Atari platform.

As a part of this process, students will learn to program games on the original Atari VCS hardware, using 6502 Assembly. Students will create hacks of classic Atari games, demakes of more recent games, as well as original works entirely of their own devising.

Previous programming experience is required, but no previous knowledge of assembly or the Atari VCS hardware is necessary (we will cover all this in the course).

**6. Learning Outcomes**

**Master’s Students**

Top Level

* Demonstrate knowledge, comprehension, and application of the tools and formal design elements of digital media design
* Demonstrate the ability to devise, design, create, and assess prototypical digital media artifacts, services, or environments and to contextualize them within recognized traditions of practice

Secondary Level

Application

* Demonstrate use of digital media to create prototypes
* Demonstrate good time management skills
* Demonstrate ability to set realistic goals

Analysis

* Can develop interactive media artifacts

Synthesis

* Can design and create digital artifacts that create the experience of agency for the interactor.
* Can design and create digital artifacts that segment and tag media to create meaningful organizational units

Evaluation of Works

* Can summarize their work orally and in written form using formal terminology
* Can justify the design choices in their works
* Can formulate and test design hypotheses

**Additional Ph.D. Learning Objectives**

Top Level

* Students have knowledge, comprehension and ability to apply historical, cultural, and theoretical concepts to the study of digital media.
* Students can formulate original interpretations and design original prototypes that reflect an understanding of the humanistic context of digital media.

Secondary Level

Knowledge

* Identify the historical and cultural roots of digital media

Application

* Apply theoretical concepts to specific digital media works

**7. Required Texts**

**Books**

* Nick Montfort and Ian Bogost, *Racing the Beam: The Atari Video Computer System* (Cambridge, MA: MIT Press, 2009).
* Jennifer Forrest and Leonard R. Koos, editors, *Dead Ringers: The Remake in Theory and Practice* (Albany: SUNY Press, 2002).

**8. Graded Assignments**

**This is an advanced level graduate seminar, so students are expected to be self-motivated. Excellent work will require considerable effort outside of class. A variety of reading assignments, class discussion, writing assignments, weekly exercises, presentations, and programming projects are required in this course. It demands a well-rounded student. It is not possible to do well in this class by only writing, or only reading, or only programming.**

***Weekly homework and critique: 10%***

Each week students will be assigned simple homework assignments meant to help them practice programming concepts discussed in class. Most weeks, students will be asked to demonstrate previous weeks' efforts to their colleagues for critique and discussion. This grade is given primarily based on completion rather than quality.

***Final presentation and critique: 10%***

During the final week of class, each student will be expected to prepare and present for approximately 10-15 minutes (TBD based on enrollment) on any aspect of their work in the class. Students can choose to present a suite of work, do a talk corresponding with the paper, present and justify a game, or any combination. It's up to you.

***Atari hack: 20%***

Students will create one coherent "hack" of an Atari game by altering the code from a disassembly.

***Atari remake/demake: 20%***

Students will create one original Atari game that remakes or "demakes" an earlier game in an interesting way.

***Written paper: 20%***

Students will write one research paper of approximately 5,000 - 8,000 words, on a subject of their choosing related to the themes of the course. I'm not going to tell you what to write; you're graduate students, you ought to be clever. For graduate students, the paper should approach publishable quality.

***Class participation: 20%***

In addition to critique, students will participate in discussions of the readings and topics for each week of class. It goes without saying that class participation requires class attendance.

**9. Attendance Policy**

Attendance and punctuality are mandatory. Three or more unexcused absences will result in a half grade point reduction. An **excused** absence is one in which permission is requested in advance and you have a legitimate reason to skip class, such as an illness. You are expected to make up what you missed by checking with other students and reviewing lecture materials on the web site.

**10. Information for Students with Disabilities**

Please notify the instructor if you have any disabilities with which you need special assistance or consideration. The campus disability assistance program can be contacted through ADAPTS: <http://www.adapts.gatech.edu>

**11. Honor Code Statement**

Students are expected to adhere to the Georgia Tech Honor Code:

<http://www.honor.gatech.edu/plugins/content/index.php?id=9>

**12. Course Schedule**

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| **Week #** |  | **Read [Due Thurs]** |
| **Week 1** | Introductions |  |
| **Week 2** | Platform Studies, Universal Computation |  |
| **Week 3** | Combat, Pong, 6502 Assembly, the Atari Dev Environment |  |
| **Week 4** | Adventure, Remakes 1,  Initialization, Memory Management, the Kernel |  |
| **Week 5** | Pac-Man, Demakes, the TIA, the Screen, Color |  |
| **Week 6** | Graphical Hacks, Disassemblies, Playfield Graphics |  |
| **Week 7** | Functional Hacks, Sprites, Collisions |  |
| **Week 8** | Remakes 2, User Input |  |
| **Week 9** | FALL RECESS  NO CLASS |  |
| **Week 10** | Audio Hacks, Sound |  |
| **Week 11** | Spring Break |  |
| **Week 12** | Art Hacks, Asymmetrical Playfields |  |
| **Week 13** | Origin and Imitation, Animation, Splashscreens, Saving Space |  |
| **Week 14** | Industrial Hacks, Playfield Scrolling |  |
| **Week 15** | Autoremakes and Sequels |  |
| **Week 16** | Presentations |  |
| **Week 17** | **FINALS WEEK NO CLASS** |  |