

# The Word Made Digital

21W.764J / CMS.609J / CMS.844

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Class meets Mondays and Wednesdays, 9:30am - 11am, 14E-310

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## Short Description

Video games, digital art and literature, online texts, and source code are analyzed in the contexts of history, culture, and computing platforms. Approaches from poetics and computer science are used to understand the non-narrative digital uses of text. Students undertake critical writing and creative computer projects to encounter digital writing through practice. This involves reading and modifying computer programs, so previous programming experience, although not required, will be helpful. The graduate section includes additional assignments.

## Elaborated Description

This course considers the wide spectrum of ways that text, language, and writing have been used in creative digital media, including video games, digital artworks and installations, electronic literature pieces, websites, message boards, the interface to and source code of recreational programs, and other sorts of systems and spaces. The focus is on the many non-narrative uses of text, which include the use of text for the display of information, for visual and lyrical purposes, and as human-legible computer code. The course considers these uses of text within different contexts of computing and upon different computing platforms. Drawing on concepts and approaches from poetics, the material history of texts, and computer science, the course will explore how text has been used effectively in digital media and how the use of text relates to the overall goals of digital media creators. Students will interact with and read various creative computer works, supported by critical readings from the Web and printed sources. The understanding of text in digital media will also be developed through practice, by completing several digital writing projects, some individually and some in groups. The projects in this course involve reading and modifying computer programs. Previous programming experience is not necessary, but students should arrive ready to learn the basics of programming if they do not already know how to program. While there are no prerequisites, some experience with writing, in the form of a previous writing course or in some other form, will be extremely useful.

Graduate students may take this course, with additional assigned work, as CMS.844 for graduate credit. One of the six sections of this course covers material explored in greater depth and more comprehensively in 21W.772 Digital Poetry. Another complement to this course is 21W.765J/21L.489J/CMS.845 Interactive Narrative, which deals with the narrative uses of text (and other media) in digital works and which can be taken at any point relative to this course.

## Why?

The course serves a wide range of students interested in text and digital media, from artists and creative writers who want to create digital literary works to those interested in online and in-game advertising. The course builds on the Writing and Humanistic Studies Program's extensive undergraduate offerings that relate to digital media: Interactive Narrative, Digital Poetry, Becoming Digital, and Writing in Cyberspace. For those who want to take a single course on digital writing, this course offers an additional option. For majors and minors, this course will help to provide a deep and broad education in digital media and writing. For students in Comparative Media Studies, the course will address a single element of digital media that is pervasive and important to our understanding of media ecology and the uses of digital media in culture. It will complement courses that consider video gaming and digital media from visual, cinematic, and spatial perspectives.

## Outline of the Course

1. Recreational Computing & Early Computer Creativity (1-5)
2. Computational Poetry & Fiction (6-9)
3. Digital Communication Channels (10-14)
4. Commercial Video Games (15-18)
5. Art Games, Installations & Performances (19-21)
6. Student Language Games Workshop (22-23)
7. Obfuscated Code & Human-Legible Programs (24-26)

**Note: Readings will be specified in more detail, links will be added, and other small changes may be made throughout the semester.**

### 1 - Recreational Computing & Early Computer Creativity (W Feb 6)

Demonstrations of Christopher Stratchey's [M.U.C. love letter generator](http://www.alpha60.de/research/muc/),  
<<http://www.alpha60.de/research/muc/>> random haiku (1  
<<http://anal0g.org/haiku/>> 2 <<http://www.cs.indiana.edu/cgi-bin/haiku>> 3  
<<http://www.gothpunk.com/haiku-intro.html>>), Eliza.  
<<http://chayden.net/eliza/Eliza.html>> Preview of selected digital works that will be read and discussed later in the semester.

In-class combinatorial writing exercises on paper.

### 2 - Recreational Computing & Early Computer Creativity (M Feb 11)

Discussion of digital and pre-digital techniques for combinatorial writing.

Beyond the cut-up: Literary constraint and potential literature.

In-class constrained writing exercises on paper.

First project assigned: A program that implements some combinatorial or constrained literary technique. Languages such as Perl, BASIC, and others (with instructor approval) may be used; Python is the class's official "supported" language. Skeleton programs and examples will be available as possible starting points.

### Readings for this class

- "The Cut-Up Method of Brion Gysin"  
<[http://www.ubu.com/papers/burroughs\\_gysin.html](http://www.ubu.com/papers/burroughs_gysin.html)> - William S. Burroughs
- Part III, Chapter 5 from *Gulliver's Travels*  
<<http://www.jaffebros.com/lee/gulliver/bk3/chap3-5.html>> - Johnathan Swift (read the section on the literary engine closely)
- "The Oulipo: Constraints and Collaboration"  
<<http://www.spinelessbooks.com/20/essays/oulipo.html>> - William Gillespie

## 3 - Recreational Computing & Early Computer Creativity (W Feb 13)

Python tutorial. Those who know Python can assist others. Natural language processing in Python will be touched upon.

### Readings for this class

- For those who haven't programmed, check out [A Non-Programmer's Tutorial for Python](http://en.wikibooks.org/wiki/Non-Programmer's_Tutorial_for_Python)  
<[http://en.wikibooks.org/wiki/Non-Programmer's\\_Tutorial\\_for\\_Python](http://en.wikibooks.org/wiki/Non-Programmer's_Tutorial_for_Python)> or any of the [resources for non-programmers](http://wiki.python.org/moin/BeginnersGuide/NonProgrammers).  
<<http://wiki.python.org/moin/BeginnersGuide/NonProgrammers>> Those who have programmed, but not in Python, may want to just [Dive into Python](http://diveintopython.org/).  
<<http://diveintopython.org/>>

## 4 - Recreational Computing & Early Computer Creativity (M Feb 18)

Review of some programs from the first class with consideration of Burroughs, Swift, the Oulipo via Gillespie, Link, and Wardrip-Fruin.

### Readings for this class

- "There Must Be an Angel: On the Beginnings of the Arithmetics of Rays"  
<[http://alpha60.de/research/muc/DavidLink\\_RadarAngels\\_EN.htm](http://alpha60.de/research/muc/DavidLink_RadarAngels_EN.htm)> - David Link

- "Reading Digital Literature: Surface, Data, Interaction, and Expressive Processing" <<http://www.noahwf.com/texts/nwf-readingDigitalLiterature.pdf>> - Noah Wardrip-Fruin

## 5 - Recreational Computing & Early Computer Creativity (W Feb 20)

Brief presentation of all student projects in a screening format. Students will explain how they function and demonstrate their programs.

### Due

Program 1: A program that writes automatically and implements some originally non-digital procedure.

## 6 - Computational Poetry & Fiction (M Feb 25)

Technologies of writing and the word. In-class reading of additional concrete, visual, and typewriter-related poems from Futurist and other traditions. Preview of works from this unit, assignment of works to students for close reading, presentation, and critical writing.

### Readings for this class

- *Carnival* <[http://www.chbooks.com/archives/online\\_books/carnival/](http://www.chbooks.com/archives/online_books/carnival/)> - Steve McCaffrey
- *Star Wars One Letter at a Time* <[http://collection.eliterature.org/1/works/stefans\\_\\_star\\_wars\\_one\\_letter\\_at\\_a\\_time](http://collection.eliterature.org/1/works/stefans__star_wars_one_letter_at_a_time)> - Brian Kim Stefans

### Due

Concept (2 sentences max) for program 2

## 7 - Computational Poetry & Fiction (W Feb 27)

Codework that works. Students present pieces they have read closely.

- *Bad Machine* <<http://pages.cs.wisc.edu/~dbs/bmch.html>> - Dan Shiovitz
- *Lexia to Perplexia* <[http://www.uiowa.edu/~iareview/tirweb/hypermedia/talan\\_memmott/](http://www.uiowa.edu/~iareview/tirweb/hypermedia/talan_memmott/)> - Talan Memmott

- Works <<http://wwwwwwwww.jodi.org/>> - Jodi

### Readings for this class

- "Code.surface || Code.depth"  
<<http://www.dichtung-digital.com/2006/01/Raley/index.htm>> - Rita Raley

## 8 - Computational Poetry & Fiction (M Mar 3)

Language in space and time. Students present pieces they have read closely.

- *Pax, An Instrument* <<http://www.smoulthrop.com/lit/pax/>> and *Under Language* <<http://www.smoulthrop.com/lit/ul/>> - Stuart Moulthrop
- *[theHouse]*  
<[http://collection.eliterature.org/1/works/flanagan\\_\\_thehouse.html](http://collection.eliterature.org/1/works/flanagan__thehouse.html)> - Mary Flanagan

### Readings for this class

- Stuart Moulthrop interviewed  
<<http://www.uiowa.edu/~iareview/tirweb/feature/moulthrop/interview.html>>  
by Noah Wardrip-Fruin

## 9 - Computational Poetry & Fiction (W Mar 5)

Literal art. Students present pieces they have read closely.

- *Overboard, Translation, and riverIsland*  
<<http://homepage.mac.com/shadoof/net/in/>> - John Cayley (links in left-hand frame)
- *Landscapes*  
<[http://collection.eliterature.org/1/works/marsh\\_\\_landscapes.html](http://collection.eliterature.org/1/works/marsh__landscapes.html)> - Bill Marsh

### Readings for this class

- "Literal Art: Neither Lines nor Pixels but Letters"  
<<http://www.electronicbookreview.com/thread/firstperson/programmatology>>  
- John Cayley

## 10 - Digital Communication Channels (M Mar 10)

How does the form, material, and situation of digital communication influence what we write? Ability to support fluent writing of different sorts. Support for formatting, special characters. Conventions and contexts of writing and reading. Spaces in which writing is done.

In-class exercise in cell phone text message composition.

## Due

Paper 1: Computational poetry & fiction critical essay, on the same topic as one's presentation.

## 11 - Digital Communication Channels (W Mar 12)

Traditional digital forms beyond the web. HOWTOs, man pages, USENET and email messages, textfiles, RFCs. In-class exercise in composing short messages for screen savers.

### Readings for this class

- Selected online primary sources (HOWTOs, man pages, USENET and email messages, textfiles, RFCs)

## 12 - Digital Communication Channels (M Mar 17)

Focus on a contemporary digital media channel and how it carries/shapes language. (Guest lecture possibility. Channels may include WoW, Second Life, Flash animations, Twitter, etc.)

## 13 - Digital Communication Channels (W Mar 19)

Focus on a contemporary digital media channel and how it carries/shapes language. (Guest lecture possibility. Channels may include WoW, Second Life, Flash animations, Twitter, etc.)

## 14 - Digital Communication Channels (M Mar 31)

Focus on a contemporary digital media channel and how it carries/shapes language. (Guest lecture possibility. Channels may include WoW, Second Life, Flash animations, Twitter, etc.)

## Due

Paper 2: A critical analysis of one non-Web digital communication form (e.g. a HOWTO or textfile) presented in a different non-Web digital communication form (e.g. a USENET FAQ or man page).

## 15 - Commercial Video Games (W Apr 2)

Introduction to the use of text and language in video games. Different contexts of gaming: the arcade, computer gaming, console gaming. Enumerating the different functions of text in a "typical" game.

### Readings for this class

- "Word Play" <<http://www.rockpapershotgun.com/?p=440>> - Kieron Gillen

## 16 - Commercial Video Games (M Apr 7)

When games were texts. Students present pieces they have read closely.

### Readings for this class

- *Rogue*, *Star Trek*, *The Prisoner*, and other early all-text games

## 17 - Commercial Video Games (W Apr 9)

Text in the arcade. Students present pieces they have read closely.

### Readings for this class

- *Asteroids*, *NARC*, *House of the Dead*, and other arcade games

## 18 - Commercial Video Games (M Apr 14)

TextBox 360: Language on the video game console. Students present pieces they have read closely.

### Readings for this class

- *Hangman, Typing of the Dead, Rez*, and other console games

## 19 - Art Games, Installations & Performances (W Apr 16)

Art games. Documentation of various artist-created games will be shown, including some games that aren't text-heavy such as those by Cory Archangel and Eddo Stern.

- *Arteroids* <[http://machinepoetics.com/page\\_space/show\\_machine/arteroids/](http://machinepoetics.com/page_space/show_machine/arteroids/)> and *NIO* <<http://turbulence.org/Works/Nio/>> - Jim Andrews
- *The Intruder* <<http://bookchin.net/intruder/>> - Natalie Bookchin

### Due

Paper 3: A paper covering the same commercial video game one's presentation was about.

### Readings for this class

- "Literary Games" <[http://nickm.com/writing/essays/literary\\_games.html](http://nickm.com/writing/essays/literary_games.html)> - Nick Montfort

## 20 - Art Games, Installations & Performances (W Apr 23)

Language in the Cave. Discussion of the Cave context, scientific computing and visualization.

- *Screen and Talking Cure* - Noah Wardrip-Fruin
- Documentation of pieces by John Cayley, Talan Memmott, William Gillespie, and others.

## 21 - Art Games, Installations & Performances (M Apr 28)

- *Text Rain* - Camille Utterback

### Readings for this class

- "Unusual Positions - Embodied Interaction with Symbolic Spaces" <<http://www.electronicbookreview.com/thread/firstperson/utterback>> - Camille Utterback

## 22 - Student Language Games Workshop (W Apr 30)

Class will be devoted to discussing work in progress on Program 2.

### Due

Paper 4: Compare the use of text in an art game (the same one presented upon in class) with that in a commercial video game.

## 23 - Program 2 presentations (M May 5)

Students will demo Program 2 and there will be a short time for critique.

### Due

Program 2.

## 24 - Obfuscated Code & Human-Legible Programs (W May 7)

Popular computing, reading BASIC. Trace of two BASIC programs. Examination of layout, presentation, contextualization of programs in printed matter from the 1970s and 1980s.

### Readings for this class

- Selections from *BASIC Computer Programs for the Microcomputer* - ed. David Ahl
- Selections from *What to Do After You Press Return* - People's Computer Company
- Selections from *BYTE* and other magazines
- Selected one-line BASIC Programs

## 25 - Obfuscated Code & Human-Legible Programs (M May 12)

In-class programming exercise: one-line BASIC programs.

### Readings for this class

- "A Box, Darkly: Obfuscation, Weird Languages, and Code Aesthetics"  
<[http://nickm.com/cis/a\\_box\\_darkly.pdf](http://nickm.com/cis/a_box_darkly.pdf)> - Michael Mateas and Nick Montfort

## 26 - Obfuscated Code & Human-Legible Programs (W May 14)

Explication of obfuscated Perl and C programs. "Sight reading" of programs, obfuscated and otherwise.

### Due

Paper 5 & Program 3: A short paper explicating an obfuscated program and a revision of that program into a "literate" program — a program that is meant to be read and easily understood.

## Assignments

### Creative work

- Program 1: An "automatic writer."
- Program 2: An interactive game that manifests itself in language or is based on poetic or literary principles.
- Program 3: A revised obfuscated program in which the workings of the program are made clear.
- Students may revise program 1 or 2 for credit.
- Students in the graduate section are required to substantially revise either program 1 or 2, due at the end of the semester, in addition to completing the other assignments.

### Critical work

- Paper 1: 5-page paper offering a close reading of a digital literary work.
- Paper 2: 2-page critical discussion of some digital media form, itself presented in a non-mainstream digital format, e.g. a textfile, USENET FAQ, or man page.
- Paper 3: 5-page paper on the use of text in a video game.
- Paper 4: 5-page paper comparing the use of text in a digital art project with that in a video game or literary work.
- Paper 5: 3-page paper explicating an obfuscated program, including the code in Program 3.

### Evaluation

- 15% class participation (start with 15%; 5% off for missing an exercise, 15% off for missing a presentation)
- 15% program 1
- 15% program 2
- 10% paper 1
- 10% paper 2
- 10% paper 3
- 10% paper 4
- 15% program 3 + paper 5
- (Students in the graduate section earn the initial 15% of their credit by revising program 1 or 2, with class participation still required.)
- (Students in an undergraduate graduate section may earn up to 10% for a substantial revision of program 1 or 2.)

### Note: The Writing Center

The Writing and Communication Center (12-132) offers you free professional advice from published writers about oral presentations and about all types of academic, creative, and professional writing. To schedule an appointment, go to <http://web.mit.edu/writing> <<http://web.mit.edu/writing>> and click on the yellow sunburst. If you cannot find an open appointment slot, do not despair. There are always cancellations on the day of the appointment (sometimes as many as 15 cancellations in one day). Click on the wait list (the blue strip that says "Is the time that you want already reserved?"). Whenever a cancellation occurs on that day, you will be automatically notified by email. Because several people might receive that same message, go online ASAP to schedule that open spot; 96% of clients who want an appointment end up with one if they use the wait list. If you can't find an appointment, you try dropping in or try the [online tutor](#). <<http://web.mit.edu/writing/Center/onlinetutor.html>> The Center's hours are Monday-Thursday, 9:00 a.m.-9:00 p.m.; Friday 9:00 a.m.-6:00 p.m.; and Sundays, 5:00-9:00 p.m.