



Teacher

Patrick LeMieux
Office: Art 224
Hours: T 10–11AM, Th 11AM–12AM
lemieux@ucdavis.edu

Time

Fall Quarter 2017
Art Annex 103 (Mac Lab)
T, Th 4:10PM–7:00PM
Course documents on canvas

Course Description

“Dear John Romero...do you know you created an art scene? Do you know you created a new underground cultural timeline? Do you know you created an art form?” In her open letter to one of the founders of id Software, Jazz Mickle evokes the diverse community practices that surround videogames--from single-player speedruns and multiplayer competitions to custom interfaces and homebrewed modifications. “Did you realize, John Romero, that *DOOM* is an art scene?” Over the past 25 years, how did one of the most infamous first person shooters become both a scapegoat for gun violence and satanism as well as a platform for experimental art games? In this small, hands-on studio class we will conduct an intensive, archeological study of one specific piece of software, *DOOM*, in order to investigate the corporate histories, media ecologies, and community practices that encircle, ensnare, and support digital media technologies like videogames.

To this end, we will read David Kushner’s *Masters of Doom*, the story of the rise and fall of the original id Software team, while investigating the tools, technologies, and tricks that make a thirty-year-old game playable in 2017. We will try out JP LeBreton’s philosophy of game tourism, attempt single-level speedruns in the style of DooMed and SDA, listen to Liz Ryerson’s design discussions, and read Robert Yang’s histories of modding. We will study the original shareware, watch competitive playthroughs, boot up well known mods like *Foreverhood* and *Adventures of Square*, and make our own games within the id Tech 1 engine. Along the way we will also discuss 1990s counterculture, violence and videogames, and toxic masculinity. From John Carmack’s source code and John Romero’s level designs to Senate Committee hearings and Columbine court cases to advertising for Chex cereal and Ars Electronica art mods, *DOOM* operates as a lens from which to study the history, culture, and design of videogames.

Previous experience with game design, software development, programming, and electrical engineering is **NOT** required, but this course will progress at brisk pace and include hands-on prototyping, in-class discussion, and rigorous critique. As a result, our games will investigate the material and historical specificity of not only *DOOM* development but modding as a technical and cultural practice.

Course Materials

Required Readings

- *Masters of Doom* by David Kushner
- All weekly readings uploaded to the Canvas

Required Games

- *Doom Shareware*: <https://archive.org/details/DoomsharewareEpisode> (Free)
- *Ultimate Doom*:
 - https://www.gog.com/game/the_ultimate_doom (\$5.99)
 - http://store.steampowered.com/app/2280/Ultimate_Doom/ (\$4.99)

Required Software

- *Chocolate Doom*: <https://www.chocolate-doom.org/> (Limited Doom emulator for PC/Mac)
- *GZ Doom*: <https://zdoom.org/> (Enhanced Doom emulator for PC/Mac)
- *Slade3*: <http://slade.mancubus.net/> (Doom editor for PC/Mac)
- Photoshop (or some other program for editing raster/bitmap images)
- Audacity (or some other program for editing wav/mp3 audio)

Required Hardware

- Cheap USB Three Button Mouse:
 - <https://www.amazon.com/AmazonBasics-3-Button-Wired-Mouse-Black/dp/B005EJH6RW>
- Arduino Uno (Rev 3):
 - <https://store.arduino.cc/usa/arduino-uno-rev3>
 - <https://www.amazon.com/Elegoo-Project-Starter-Tutorial-Arduino/dp/B01D8KOZF4>

Recommended Hardware and Software

- USB Flash Drive or Portable Hard Drive
- *Doom II*: http://store.steampowered.com/app/2300/DOOM_II/ (\$4.99)

Course Rules

Attendance

Being on time and attending all class sessions is required. Being late to class or absent will affect your participation grade and I will be noting attendance daily. Excused absences require proper documentation and any course material missed through an absence (excused or unexcused) must be made up individually.

Deadlines

Assignments must be handed in on time. This policy will be strictly enforced and no extensions will be permitted unless there is proper documentation or the request is made in advance. Each day late will have a third of a letter grade deducted (i.e., B+ becomes B, B becomes B-, etc.)

Academic Honesty

You are expected to be familiar with and to abide by the UC Davis Rules of Academic Conduct. See <http://sja.ucdavis.edu/> for more information. I will report all incidents of academic dishonesty (plagiarism, cheating, and so forth), whether intentional or not, to Student Judicial Affairs and you will receive no credit for the assignment.

Accommodations

Any student who feels he or she may need an accommodation based on the impact of a disability should contact me privately to discuss his or her specific needs. In addition, the student should contact the Student Disability Center (<https://sdc.ucdavis.edu>) at (530) 752-3184 or sdc@ucdavis.edu at the beginning of the quarter to better ensure that such accommodations can be implemented in a timely fashion. All accommodations must have prior approval from the SDC on the basis of medical or other appropriate documentation.

Cell Phones

Cell phones and other communication devices must be turned off during class—no ringing, no buzzing, no talking, no texting. Repeated incidents will affect your participation grade.

Email

Before sending an email, ask yourself if it is a question already answered by the syllabus, project, assignment, or worksheet. Especially when concerning class projects, please drop by office hours rather than sending email. Regarding emails, I will try to respond within 72 hours.

Laptops

Laptops, cellphones, and tablets are for class purposes only. Casual in-class surfing (e.g., social media, watching videos, email, texting, playing games that are not being discussed in class) will affect your attendance and participation grade.

Materials

You are responsible for bringing all required materials to class. This will affect your attendance and participation grade.

Grade Breakdown

35% - Weekly Project

- 5% - Playing DOOM
- 5% - Touring DOOM
- 5% - Speedrunning DOOM
- 5% - Mapping DOOM
- 5% - Reskinning DOOM
- 5% - Scripting DOOM
- 5% - Interfacing DOOM

25% - Final Project

- 25% - Presentation/Exhibition/Publication

20% - Documentation

- 2% Each - DOOM Diary, dev log due at 11:59PM on Wed. after critique starting Week 2

10% - Presentation

- 10% - DOOM Demo, demonstrate final project at The Play's the Thing on December 7

10% - Participation

- 1% Each - Are you on time and prepared for class each week?

5% - Bonus

- Participate in and document Double Fine's "Day of the Devs," on Saturday, November 11 at The Midway, 900 Marin St, San Francisco, CA 94124 (<http://dayofthedevs.com/>)

Grade Rubric

25% - Creativity

- Does your project have an original voice? Does it solve the problem in a unique way? Does it avoid videogame cliches? Is it aesthetically interesting?

25% - Criticality

- Does your project engage the course texts? Does it have something to say? Does it participate in a conversation? Does it offer an argument?

25% - Craft

- Does your project work? Does it make use of techniques demoed in class? Is it carefully constructed and well designed?

25% - Critique

- Was your project turned in on time and ready to present during critique? Did you show up and participate in critique (of both your project and those of other students)?

Grade Scale

A+	97-100
A	94-96
A-	90-93
B+	89-87
B	84-86
B-	80-83
C+	79-77
C	74-76
C-	70-73
D+	69-67
D	64-66
D-	60-63
F	<60

Schedule

Week 1 - Welcome to Hell: Introduction, Emulation, and Playing “Knee Deep in the Dead”

- “Doom is an Art Scene” by Jazz Mickle
- Introduction and Syllabus
- Play *DOOM* together

Assignment 1, Playing DOOM: Write a level-by-level description documenting your personal playthrough of the shareware episode of *DOOM*

Week 2 - The Road to Hell: Videogame Histories, Console Commands, and Touring Doom

- David Kushner, *Masters of Doom*, p. 1-28
 - “Introduction: The Two Johns”, p. ix-xi
 - “1. The Rock Star”, p. 3-17
 - “2. The Rocket Scientist”, p. 18-28
- *When Games Went Click* - <https://www.youtube.com/watch?v=6QSHZ20MQfE>
- “Spacewar” by Stewart Brand - <http://digitizingamerica.shanti.virginia.edu/sites/shanti.virginia.edu.digitizingamerica/files/SPACEWAR%20-%20by%20Stewart%20Brand.pdf>
- *Spacewar* on a PDP1 Emulator - https://archive.org/details/pdp1_spacewar
- “Somewhere Nearby is Colossal Cave” by Denis Jerz - digitalhumanities.org/dhq/vol/1/2/000009/000009.html
- *Colossal Cave Adventure* on a PDP11 Emulator - <https://skn.noip.me/pdp11/pdp11.html>
- From *Breakout* to Apple - [youtube.com/watch?v=cklBjRuXKeA&feature=youtu.be&t=723](https://www.youtube.com/watch?v=cklBjRuXKeA&feature=youtu.be&t=723)
- “What is Game Tourism” by JP LeBreton - <http://vectorpoem.com/tourism>
- *Autobiographical Architecture* by JP LeBreton - <http://vectorpoem.com/autobio/>
<https://www.youtube.com/watch?v=c0UXCzcNXns>
<https://www.doomworld.com/idgames/levels/doom2/Ports/j-l/jphouse>

Assignment 2 - Touring DOOM: Using any interface, configuration, command line arguments, or cheats that you want, tour every level of *DOOM*

Week 3 - Bat Out of Hell: Speedrunning, Machinima, and Recording Demo Files

- David Kushner, *Masters of Doom*, p. 29-74
 - “3. Dangerous Dave in Copyright Infringement”, p. 29-52
 - “4. Pizza Money”, p. 53-74
- “High-Performance Play: The Making of Machinima” by Henry Lowood
- *Super Mario Bros. 3* by Morimoto and a short history of console speedrunning
- *Super Mario Bros. 3* by id Software and a comparison with Apple II and DOS games
- *Commander Keen* Speedruns by CapnClever and Narcissa Wright
- Survey of DooMed Speed Demos Archive - <http://doomed.sda.us/>
- Ultimate Doom in 28:18 by Dime - <https://www.youtube.com/watch?v=FoyAd9QBXLU>

Assignment 3 - Speedrunning DOOM: After selecting a specific level you’d like to interrogate further, create a .DEM file demonstrating a speedrun of that level of *DOOM*

Week 4 - Seven Levels of Hell: Level Design, Mapping, and Making Maps for Doom

- David Kushner, Masters of Doom, p. 75-123
 - “5. More Fun Than Real Life”, p. 75-86
 - “6. Green and Pissed”, p. 87-104
 - “7. Spear of Destiny”, p. 105-123
- Play *Wolfenstein 3D* and compare Level Maps w/ *Doom*
- John Romero, e1m8b.zip and e1m4b.zip
 - <https://www.dropbox.com/s/2x2ee3r51986dkt/e1m8b.zip?dl=0>
 - <https://www.dropbox.com/s/0kw4fqg1tuxpnxx/e1m4b.zip>
- Arcadia Demade by JP LeBreton - <http://vectorpoem.com/news/?p=68>
- “Coelacanth: Lessons from Doom” by JP LeBreton - <http://vectorpoem.com/news/?p=74>
- “My House Level Extravaganza” by JP LeBreton - [youtube.com/watch?v=lc_EOH4M1E0](https://www.youtube.com/watch?v=lc_EOH4M1E0)
- “Doom Design Commentary” by Liz Ryerson
 - [youtube.com/watch?v=VR269ItcjhA&list=PLEdRIER1F5rEoZ9repPcJM2jWvrXVDBSY](https://www.youtube.com/watch?v=VR269ItcjhA&list=PLEdRIER1F5rEoZ9repPcJM2jWvrXVDBSY)
- “DOOM MIXTAPE” by Liz Ryerson
 - [youtube.com/playlist?list=PLEdRIER1F5rF1YMwLG66KpMuv0h2OWiU](https://www.youtube.com/playlist?list=PLEdRIER1F5rF1YMwLG66KpMuv0h2OWiU)

Assignment 4 - Mapping DOOM: Using Slade, create a new *DOOM* map from scratch

Week 5 - Devil of a Time: A People’s History, Total Conversion .WADs, and Asset Creation

- David Kushner, Masters of Doom, p. 124-176
 - “8. Summon the Demons”, p. 124-1339
 - “9. The Coolest Game”, p. 140-153
 - “10. The Doom Generation”, p. 154-176
- “Reskinning” by Mary Flanagan
- “A Visit to id Software November 1993” by Dan Linton - <https://www.youtube.com/watch?v=RDAzJLBB6pE>
- “id Software’s Early Days” by John Romero - <https://www.youtube.com/watch?v=E2Mlpi8plvY>
- “Doom: A Classic Game Post-Mortem” by John Romero and Tom Hall - <https://www.youtube.com/watch?v=NnkCujnYNSo>
- “A People’s History of the FPS, Part 1, 2, 3: WAD, Mod, Postmod” by Robert Yang - rockpapershotgun.com/2012/09/19/a-peoples-history-of-the-fps-part-1-the-wad/
rockpapershotgun.com/2012/09/20/a-peoples-history-part-2-the-mod/
rockpapershotgun.com/2012/09/21/a-peoples-history-of-the-fps-part-3-the-postmod/
- Play .WADs
 - <https://www.doomworld.com/10years/bestwads/>
 - <https://www.doomworld.com/idgames/>

Assignment 5 - Reskinning DOOM: Using Slade and considering your map, create new .WAD with all new textures (and sounds if you’d like!) for *DOOM*

Week 6 - Development Hell: Source Code, Scripting, and DECORATE Files for Doom

- David Kushner, Masters of Doom, p. 177-220
 - “11. Quakes”, p. 177-195
 - “12. Judgement Day”, p. 196-220
- “Doom Source Code” by id Software - <https://github.com/id-Software/DOOM>
- “Doom Engine Code Review” by Fabien Sanglard - <http://fabiansanglard.net/doomlphone/doomClassicRenderer.php>
- “Fizzlefade” by Fabien Sanglard - <http://fabiansanglard.net/fizzlefade/index.php>
- “Floating Point Visually Explained” by Fabien Sanglard - http://fabiansanglard.net/floating_point_visually_explained/index.php
- *Game Engine Black Book* by Fabien Sanglard

Assignment 6 - Scripting DOOM: Considering your mapping and reskinning modify the DECORATE file to script new elements of *DOOM*

Week 7 - Zombie Media: Hardware, Platform, and Media Archaeologies of Doom

- David Kushner, Masters of Doom, p. 221-261
 - “13. Deathmatch”, p. 221-242
 - “14. Silicon Alamo”, p. 243-261
- “Zombie Media: Circuit Bending Media Archaeology into an Art Method” by Garnet Hertz and Jussi Parikka
- “Mouse Destruction/Repurposing” by Louie Roots - <https://www.youtube.com/watch?v=TMpjRNJ1I1M>
- Soldering, Desoldering, and Intro to Electronics Tutorial
- Coding, Blinking, and Intro to Arduino Tutorial

Assignment 7 - Interfacing DOOM: Using a three-button mouse and an Arduino, develop an alternative controller for *DOOM*

Week 8 - “Straight Out of Doom”: Counterculture, Media Violence, and Toxic Masculinity

- David Kushner, Masters of Doom, p. 262-302
 - “15. Straight out of Doom”, p. 262-280
 - “16. Persistent Worlds”, p. 281-292
 - “Epilogue”, p. 293-298
 - “Afterword”, p. 299-302
- “Origins of the First-Person Shooter” by Alexander Galloway
- “The Paradox of Real Virtuality” by Timothy Welsh
- “The Impact of Interactive Violence on Children” by the US Senate Committee
- “Sanders v. Acclaim Entertainment, Inc.” by John DeClamp
- Media Archaeology of the Tootsietoy Dakota Cap Shotgun
- Senate Committee Hearing on Videogame Violence - <https://www.c-span.org/video/?52848-1/video-game-violence>

- Presidential Radio Address, April 24, 1999 by Bill Clinton - <https://www.c-span.org/video/?122777-1/presidential-radio-address>
 - Doom WADs (Mortal Combat, Hockey) by Eric Harris - <http://www.acolumbinesite.com/eric/doom.php>
 - *Romero's Wives* by Cara Ellison: <http://nightmaremode.thegamerstrust.com/2012/11/30/romeros-wives/>
 - *Romero's Wives* by Anna Anthropy: <http://auntiepixelante.com/?p=1985>
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Week 9 - "The Doom of Your Memories Doesn't Really Exist": Doom in 2017

- "The Doom of Your Memories Doesn't Really Exist" by Julie Muncy - <https://www.wired.com/2016/07/brutal-doom-memory/>
- Brutal Doom - <http://www.moddb.com/mods/brutal-doom>
- DOOM (2016) - <https://doom.com/en-us/>
- "DOOM Series" by Noclip - https://www.youtube.com/watch?v=_7zdNr7AnWI&list=PL-THgg8QnvU4TMnDoFcl-vtJKwP2oLgyH&index=1

Assignment 8 - Remaking DOOM: Combine the techniques you've learned so far in the class to make an original gaming experience by using DOOM

Week 10 - Devil in the Details: Prototyping and Playtesting

- Work Week
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Week 11 - Final DOOM: Presentation and Publication

- Final Critique and Exhibition

Public Exhibition on Thursday, December 7 from 4PM to 7PM
Online Publication Due by Friday, December 15 at 8:00PM

TCS198 - DOOM Diaries

Assigned: Tuesday, October 3

Assignment

As part of your media archaeological and game design practice and as a way to document your progress and iterate on ideas, in this course you are required to engage with the games we play, the texts we read, and the techniques we learn on the class blog at http://patrick-lemieux.com/pedagogy/17F_TCS198/. A total of 9, media rich posts are due throughout the quarter as well as at least 3, constructive comments.

Requirements

Each entry should be about 200 words long and should include screenshots, animated .GIFs, or embedded video of your ongoing work. General criteria for judging blog posts include:

Content

Posts contain substantive and compelling documentation of a historical research and game development that is media rich, well-linked, and situated within the context of this course. Includes detailed and intriguing content, *well chosen in the service of a larger point*. Makes use of links, images, video, and any other affordances of multi-modal, networked technology.

Style

Posts employ an articulate, distinctive, and engaging voice. Represents your artistic, technical, or designerly process. Contains an introductory hook and ends with a resonant conclusion. Although brief, flows and make use of smooth prose and makes use of rhetorical devices.

Conventions

Posts should follow general blogging conventions. Include links and other multi-media techniques appropriately embedded in the article. Make reference to previous conversations and topics from class. Uses quotations that are *properly attributed* and presented with *blockquote tags*. Shortened on the main page using the "Insert More" tag.

Grammar and Proofreading

Posts have no grammatical and syntactical errors. Proofread for common mistakes!

Turn-In

Your DOOM Diary is due every Wednesday at 11:59PM starting on October 4. Posts will be checked weekly. Comments will be checked at the end of the quarter (but it's good to start early!)

TCS198 - Project 1: Playing DOOM

Assigned: Tuesday, October 3

Due: Wednesday, October 4

Assignment

After playing through the shareware episode of DOOM without command line arguments, cheat codes, or contemporary interfaces, document your experience in a media rich, 250 word blog post at http://patrick-lemieux.com/pedagogy/17F_TCS198.

Consider your experience playing a game from 1993 in 2017. Was it challenging to get the game running and how did you solve the problem of emulation? Was playing the game difficult and what about it was different than other games you've played?

Post screenshots, maps, .GIFs, and your analysis on the class blog at

Requirements

200 words with links to supporting documents and rich media from your own playthrough. Due at 11:59PM on Wednesday, October 4.

TCS 198 - Project 2: Touring DOOM

Assigned: Tuesday, October 5

Due: Tuesday, October 10

Assignment

At <http://vectorpoem.com/tourism/>, JP LeBretton writes “Game Tourism is playing a game with the primary aim of exploring its world, without engaging in any active conflict such as combat or stealth. Whether conflict is bypassed with cheats, mods, or built-in functionality, the aim is to refocus attention on the game's architecture, aesthetics, storytelling, and atmosphere. Feel free to think of it as a form of art modding or glitching.” For your next project for this class, “tour” the remaining three episodes of DOOM using cheats codes, command line arguments, and mods then and create a short, 5 minute presentation analyzing a single feature, encounter, piece of architecture that you will present in class on Tuesday, October 10.

Requirements

Pick an area that surprised you, frustrated you, delighted you, or puzzled you. Think carefully about the design of the episode and the specific level. Create a presentation with atleast 10 slides showing visual aides, maps, screenshots, animated .gifs, and videos to help you tell us about this part of DOOM. You will have a total of 5 minutes to present the level you toured and tell us your specific story.

Cheat Codes

To use a cheat code in most versions of Doom, one simply types the code while playing (this also applies while in automap mode). After the last letter has been entered, a message of acknowledgment will appear on the top of the screen. The status bar, face, and in-game view may also change, depending on the effects of the code. Be warned though, cheat codes are disabled on the "Nightmare!" skill level, except for the IDCLEV and IDDT cheats.

- IDDQD -- Invulnerability
- IDBEHOLDI -- Temporary invisibility
- IDBEHOLDR -- Temporary radiation suit
- IDBEHOLDS -- Temporary berserk
- IDBEHOLDA -- Temporary automap
- IDBEHOLDV -- Temporary invulnerability
- IDBEHOLDL -- Temporary light
- IDKFA -- Full health, ammo, weapons, armor and keys
- IDFA -- Full health, ammo, weapons, and armor
- IDDT -- Change map detail
- IDCHOPPERS -- Gain chainsaw (Doesn't seem to work in Chocolate Doom)
- IDCLEVxy -- Warp to level 'xy' where x is the episode (E) and y is the mission (M)
- IDMYPOS -- Displays your position and bearing (Doesn'twork in Chocolate Doom)
- IDMUSxx -- Select music 'xy' where x is the episode (E) and y is the mission (M)
- IDSPISPOPD -- Walk through walls! (Doesn't seem to work in Chocolate Doom)

Command Line

In respect to the Doom engine a parameter (or command line parameter and command line argument) is a start-up indication by the user that the engine should change its default behavior. The parameters are typed after the executable's name in the command line and are followed by variables or text strings, if applicable. The command line may be the MS-DOS command line, or any compatible interface, such as a batch file, the command line or target entry in a shortcut's properties dialog box, the Windows Run command, or the command line in DOSBox.

- cdrom -- Save configuration data and savegames in c:\doomdata, allowing play from CD. (windows only)
- config <file> -- Load main configuration from the specified file, instead of the default.
- devparm -- Developer mode. F1 saves a screenshot in the current working directory.
- dumpsbstconfig <output filename> -- Read all MIDI files from loaded WAD files, dump an example substitution music config file to the specified filename and quit.
- episode <n> -- Start playing on episode n (1-4)
- extraconfig <file> -- Load additional configuration from the specified file, instead of the default.
- fast -- Monsters move faster.
- file <files> -- Load the specified PWAD files.
- iwad <file> -- Specify an IWAD file to use.
- loadgame <s> -- Load the game in slot s.
- mb <mb> -- Specify the heap size, in MiB (default 16).
- mmap -- Use the OS's virtual memory subsystem to map WAD files directly into memory.
- noblit -- Disable blitting the screen.
- nodraw -- Disable rendering the screen entirely.
- nomonsters -- Disable monsters.
- nomusic -- Disable music.
- nosfx -- Disable sound effects.
- nosound -- Disable all sound output.
- pack <pack> -- Explicitly specify a Doom II "mission pack" to run as, instead of detecting it based on the filename. Valid values are: "doom2", "tnt" and "plutonia".
- respawn -- Monsters respawn after being killed.
- servername <name> -- When starting a network server, specify a name for the server.
- skill <skill> -- Set the game skill, 1-5 (1: easiest, 5: hardest). A skill of 0 disables all monsters.
- turbo <x> -- Turbo mode. The player's speed is multiplied by x%. If unspecified, x defaults to 200. Values are rounded up to 10 and down to 400.
- warp [<x> <y> | <xy>] -- Start a game immediately, warping to ExMy (Doom 1) or MAPxy (Doom 2)
- zonescan -- Zone memory debugging flag. If set, each time memory is freed, the zone heap is scanned to look for remaining pointers to the freed block.
- zonezero -- Zone memory debugging flag. If set, memory is zeroed after it is freed to deliberately break any code that attempts to use it after free.

Tourism Delux

A more robust solution for exploring maps than simply running with -nomonsters, this mod also lets you customize various aspects of your experience. GZDoom 3.0 or higher. After getting Doom running in GZDoom, just drag and drop the .PK3 file onto the .APP, double click them to open them, or use the command line argument -file x.pk3 where "x" is the name of the file, in this case -file tourism.pk3

<http://vectorpoem.com/doom/>

TCS 198 - Project 3: Speedrunning DOOM

Assigned: Thursday, October 12

Due: Tuesday, October 17

Assignment

After playing *Doom* and touring *Doom*, we're ready to try and speedrun *Doom* (or at least attempt to learn the tools and techniques of the earliest machinima makers.) Henry Lowood has argued that the "transformative, high-performance play that set the stage for machinima is the variant of *DOOM* and *Quake* known as speedrunning" so some of the types of play we see today on Twitch TV, YouTube, and gaming conventions begins with `-record` and `-playdemo` commands in 1993. This week we will explore the phenomenon of speedrunning through our own high-performance experiments. For your next project for this class, speedrun a single level of *Doom* at the difficulty of your choice but without cheat codes. Use console commands to record your PB or personal best. In class on Tuesday, October 17, you will exhibit your demo file in the original software before playing through the level live, commentating your personal run.

Requirements

Pick a level that you'd like to explore deeply--this can be something you looked at in past projects or something new based on the information we've been investigating related to speedrunning. Learn to complete that level as quickly as you are able! Rather than going for completion, secrets, or kills, play for speed. Consider researching how other people play, watching the world record, studying the map. Then practice, practice practice! You should spend about as much time in this one level as you did on E2 and E3. Finally, when you are ready record a series of speedruns using the command line arguments to create a new demo files. In class on Tuesday you will have time to exhibit your best run before taking control of the game and performing for us live, commentating on the particular strategies you take as you go.

Speed Demo Videos

Speed Demos Archive - <http://speeddemosarchive.com/Doom.html>

DooMed Speed Demos Archive - <http://doomedtsda.us/index.html>

How to Speedrun Doom - <https://www.youtube.com/watch?v=8KbDYzhdGNA>

Doom Tricks, Skips, and Sequence Breaks - <https://www.youtube.com/watch?v=wF5J9t6FO8g>

Ultimate Doom by Dime at AGDQ - <https://www.youtube.com/watch?v=3FRQKVaKQ9g>

Demo Command Line Parameters

`-longtics` : Record a high resolution "Doom 1.91" demo.

`-maxdemo <size>` : Specify the demo buffer size (KiB)

`-playdemo <demo>` : Play back the demo named `demo.lmp`.

`-record <x>` : Record a demo named `x.lmp`.

`-strictdemos` : When recording or playing back demos, disable any extensions of the vanilla demo format - record demos as vanilla would do, and play back demos as vanilla would do.

TCS 198 - Project 4: Modding DOOM

Assigned: Thursday, October 19

Due: Tuesday, October 24

Assignment

Moving beyond the tools and techniques of the player--from let's plays, cheat codes, console commands, and speed demos--this week we will begin exploring the way that *Doom* is designed, modded, wadded, and coded. We'll begin with level design tools like Slade3 and Doom Builder and move towards Carmack's code over the next three weeks. For your next project for this class, first try playing a few custom .WAD you find online via the idgames archive, the Cacowards, or another source. Then make a new level using Slade3. Your design can have monsters or no monsters. It can have switches and secrets or be more straightforward. You can use Doom's assets as they were intended to be used or you can veer off into new directions of design. Feel free to explore and experiment as you build your level.

Requirements

Your .WAD file should be able to run in both Chocolate Doom and GZ Doom (without crouch or jump, for example). You should also build your BSP tree using ZDBSP rather than allow GZDoom to take care of it on its own. Your .WAD should work for E1M1 of the Ultimate Doom (for easy playthroughs) and should be a complete experience. Carefully consider if you want to build a level in the style of Romero, LeBreton, or Ryerson's work and inspiration. Doomy, everyday, and weird are all acceptable outcomes. Come to class prepared to have your level playtested live by another student! You will get to tell us its title but nothing else! Try doing a playtest early to see if you need to be more explicit with your design. Remember texturing, lighting, modeling, and scripting should work in conjunction with one another to deliver a specific mood, narrative, or effect.

Inspiration

WADs

idgames Archive - <https://www.doomworld.com/idgames/>

10 Years of Doom - <https://www.doomworld.com/10years/bestwads/>

Cacowards - <https://www.doomworld.com/cacowards/>

Videos

John Romero, E1M8b Walkthrough - <https://vimeo.com/156288044>

JP LeBreton, My House Levels - https://www.youtube.com/watch?v=lc_EOH4M1E0&t=794s

Liz Ryerson, Equinox - [youtube.com/watch?v=h1hzvqLNyWw&index=9&list=PLEdRIER1F5rF1YMwLG66KPmMuv0h2OWiU](https://www.youtube.com/watch?v=h1hzvqLNyWw&index=9&list=PLEdRIER1F5rF1YMwLG66KPmMuv0h2OWiU)

Liz Ryerson, Carrol St. Station - [youtube.com/watch?v=x8OsE-XMKTA&list=PLEdRIER1F5rF1YMwLG66KPmMuv0h2OWiU](https://www.youtube.com/watch?v=x8OsE-XMKTA&list=PLEdRIER1F5rF1YMwLG66KPmMuv0h2OWiU)

Tutorials

Slade Tutorial Video by JP LeBreton - <https://www.youtube.com/watch?v=SQj3vBzwT4A>

Slade Tutorial Blog by Eevee - <https://eev.ee/blog/2015/12/19/you-should-make-a-doom-level-part-1/>

Downloads

Slade3 (Mac/Win) - <http://slade.mancubus.net/>

ZDBSP (Win) - <https://zdoom.org/wiki/ZDBSP>

ZDBSP (Mac) - <https://www.doomworld.com/forum/topic/94196-what-nodebuilder-can-i-use-in-mac-os-x-1012x/>

GZDoom Builder - <https://forum.zdoom.org/viewtopic.php?f=3&t=32392>

TCS 198 - Project 5: Reskinning DOOM

Assigned: Thursday, October 26

Due: Tuesday, October 31

Assignment

After getting accustomed to Slade and constructing original levels for *Doom* last week, we will take that concept further by altering the data in the .WAD to include original textures. In *Critical Play*, Mary Flanagan writes about “reskinning,” or the process of “altering characters or objects [in a videogame],” as a form of critical play that can change the game. “In *The Sims*,” she argues, “replacing the graphics of household object with other images . . . manifest different values or make no sense in the game.” But what if we reskin Doom? What new meanings, arguments, criticisms, or environments can we make by adding your own custom textures to the game? And how do we technically alter the .WAD to include new texture data?

Requirements

Alongside a new map, designed from scratch again in Slade3, add at least 5 new floor flats, 5 new ceiling flats, 10 new patches, and one new skybox in order to completely reskin Doom. Your final level should not use any of the original textures (though you can export and edit them if you want to comment on *Doom* itself in you reskin). The resulting .WAD file should be able to run in both Chocolate Doom and GZ Doom (without crouch or jump, for example). You should continue to build your BSP tree using ZDBSP rather than allow GZDoom to take care of it on its own. Your .WAD should work for E1M1 of the *Ultimate Doom* (for easy playthroughs) and should be a complete experience.

Inspiration

Carefully consider if you want to build a level in the style of a gritty, *Doom*-like total conversion (like *Aliens* or *Foreverhood*), a colorful, cartoony total conversion (like *Chex Quest* or *The Adventures of Square*), something more abstract (like Jodi’s *SOD* or *The Sky May Be*), or a format unique to your own vision--consider text, photographs, drawings, etc. Come to class prepared to have your level playtested live by another student! You will get to tell us its title but nothing else! Try doing a playtest early to see if you need to be more explicit with your design. Remember texturing, lighting, modeling, and scripting should work in conjunction with one another to deliver a specific mood, narrative, or effect.

Tutorials

Class Tutorial

I will be posting my tutorial on our class Box account ASAP--it will show how to add all the files.

Other Tutorials

These are not perfect, but the second half of each is very close to our approach:

Text - <http://slade.mancubus.net/index.php?page=wiki&wikipage=How-to-Import-Textures>

Video - https://www.youtube.com/watch?v=_UV3kbrbuw8

Links

ChexQuest 1, 2 and 3

<https://www.youtube.com/watch?v=PSjD8855qo0>

<http://www.chucktropolis.com/downloads/ChexQuest3.zip> - On Windows double click chex3.exe

<http://www.chucktropolis.com/downloads/ChexQuest3.zip> - On Windows or Mac drag/drop chex3.wad onto GZDoom with Ultimate Doom selected

Adventures of Square

<https://www.youtube.com/watch?v=srwINChzucc>

<http://adventuresofsquare.com/>

<http://adventuresofsquare.com/downloads/square-ep1-win32-1.4.zip> - On Windows double click SQUARE.EXE

<http://adventuresofsquare.com/downloads/square-ep1-pk3-1.4.zip> - On Windows or Mac drag/drop square1.pk3 onto GZDoom with Ultimate Doom selected

Foreverhood 1.1

<https://www.youtube.com/watch?v=Q0Lc7O1-3Uc>

<https://iamsparky.wordpress.com/indie/>

<http://www.foreverhood.com/Files/Foreverhood%201.1.zip> - On Windows double click Run Foreverhood.bat, On Mac its not perfect but you can drag and drop main.wad (from the "base" folder) with DOOM II selected and include these arguments:

```
-file "base/main.wad" "base/data.pk3" -config "base/foreverhood.ini"
```

```
-file "/Users/patrickadmin/Desktop/Desktop/Modding/DOOMDEV_Mac/Doom pWADs/Foreverhood/base/main.wad"
```

```
"/Users/patrickadmin/Desktop/Desktop/Modding/DOOMDEV_Mac/Doom pWADs/Foreverhood/base/data.pk3" -config
```

```
"/Users/patrickadmin/Desktop/Desktop/Modding/DOOMDEV_Mac/Doom pWADs/Foreverhood/base/foreverhood.ini"
```

SOD (Wolfenstein Mod)

https://www.youtube.com/watch?v=24KQiy0U_Uk

<http://sod.jodi.org/> (For Mac and Windows, Good luck!)

The Sky May Be

<https://www.youtube.com/watch?v=1CaHKqAvrww>

https://www.doomworld.com/idgames/levels/doom/s-u/smb_v102

https://www.chocolate-doom.org/wiki/index.php/The_Sky_May_Be

```
-merge _smb417.wad -deh blessed.deh
```

```
-merge "/Users/patrickadmin/Desktop/Desktop/Modding/DOOMDEV_Mac/Doom pWADs/SkyMayBe/_smb417.wad" -deh
```

```
"/Users/patrickadmin/Desktop/Desktop/Modding/DOOMDEV_Mac/Doom pWADs/SkyMayBe/blessed.deh"
```

TCS 198 - Project 6: Scripting DOOM

Assigned: Thursday, November 2

Due: Tuesday, November 7

Assignment

Now that you've built original levels and learned how to change the flats, textures, and skybox to custom graphics, for the next assignment we will be changing the various actors that appear in doom: props, monsters, and weapons. This will require that we create new types of markers (SS_START, SS_END) to place our sprites within, and new types of files (DECORATE, SNDINFO) that will allow us to begin scripting in *Doom*.

Requirements

Alongside a new map, designed from scratch again in Slade, add at least 5 new props (these can be animated or not animated, have a single frame or have eight sides, and be inert or respond to player interactions--it's up to you.) Also add at least one new monster and one new weapon (which do not have to make use of attack states if you don't want them to!) Your props, monster, and weapon should use custom graphics and custom sounds but can use decorate scripts that you borrow and modify from either the original classes in doom (<https://zdoom.org/wiki/Classes:Doom>) or from a modding repository like Realm 667 (<http://realm667.com/index.php/en/repository-18489>).

The resulting .WAD file should be able to run in *GZ Doom* but you should continue to build your BSP tree using ZDBSP rather than allow GZDoom to take care of it on its own. Your .WAD should work for E1M1 of the *Ultimate Doom* (for easy playthroughs) and should be a complete experience.

Tutorials

I will be posting a video tutorial on our class Box account ASAP--it will go through these steps:

MUSIC & RENAMING D_E1M1:

YouTube Tutorial: <https://www.youtube.com/watch?v=1zMfpe3bKbY>

Drag and drop an audio file or archive > Import Files

Be sure to name it the same thing as the level music like **D_E1M1** for map 1

SOUND EFFECTS & SNDINFO:

Wiki: <https://zdoom.org/wiki/SNDINFO>

YouTube Tutorial: <https://www.youtube.com/watch?v=Y6WyKChcoYI>

Create a SNDINFO Lump

Notate your music as:

```
variableName filename
```

or, if you want to set up a hierarchy:

```
typeName/variableName filename
```

DECORATE & SCRIPTING:

Wiki: <https://zdoom.org/wiki/DECORATE>

Wiki Tutorial: https://zdoom.org/wiki/New_User%27s_Guide_to_editing_with_DECORATE

The anatomy of DECORATE (where [] are optional:

```
actor classname [: parentclassname] [replaces replaceclassname] [doomednum]
{
  properties           //https://zdoom.org/wiki/actor_properties
  flags                //https://zdoom.org/wiki/Actor_flags
  state definitions    //https://zdoom.org/wiki/Actor_states
}
```

PROPS:

Wiki: https://zdoom.org/wiki/Creating_non-interactive_decorations

DOOM Examples: <https://zdoom.org/wiki/Classes:Doom#Props>

Custom Examples:

Technical - <http://realm667.com/index.php/en/prop-stop-mainmenu-163-64831/technical-mainmenu-164-44115>

Vegetation - <http://realm667.com/index.php/en/prop-stop-mainmenu-163-64831/vegetation-mainmenu-165-65318>

Lights - <http://realm667.com/index.php/en/prop-stop-mainmenu-163-64831/light-sources-mainmenu-166-58239>

Gore - <http://realm667.com/index.php/en/prop-stop-mainmenu-163-64831/gore-a-corpses-mainmenu-167-96249>

Hell - <http://realm667.com/index.php/en/prop-stop-mainmenu-163-64831/hell-a-magic-mainmenu-168-40302>

Place sprites between SS_START and SS_END

Follow naming conventions: https://zdoom.org/wiki/Creating_new_sprite_graphics

Remember to set their offsets correctly

Create a DECORATE file that that refers to them

For example:

```
ACTOR PatrickFire 15000
{
  // Based on https://zdoom.org/wiki/Classes:BurningBarrel
  Game Doom
  Radius 16
  Height 32
  +SOLID
  States
  {
  Spawn:
    PLFI A 10
    PLFI B 10
    PLFI C 10
    PLFI B 10
  Loop
  }
}
```

MONSTERS:

Wiki: https://zdoom.org/wiki/Creating_new_monsters_or_other_complex_items

YouTube Tutorial: <https://www.youtube.com/watch?v=wM7X8wS4PPE>

DOOM Examples: <https://zdoom.org/wiki/Classes:Doom#Monsters>

Custom Examples:

<http://realm667.com/index.php/en/beastuary-mainmenu-136-69621/doom-style-mainmenu-105-73113>

Place sprites between SS_START and SS_END
Remember to set their offsets correctly
Create a DECORATE file that that refers to them
For example:

<https://zdoom.org/wiki/Classes:ZombieMan>

GUNS:

Wiki: https://zdoom.org/wiki/Creating_new_weapons

YouTube Tutorial: <https://www.youtube.com/watch?v=YS8RYSS0Sk4>

Doom Examples: <https://zdoom.org/wiki/Classes:Doom#Weapons>

Custom Examples:

<http://realm667.com/index.php/en/armory-mainmenu-157-97317/doom-style-mainmenu-158-94349>

Place sprites between SS_START and SS_END
Remember to set their offsets correctly
Create a DECORATE file that that refers to them

```
ACTOR PatrickFist : Weapon 15003
{
    // Based on https://zdoom.org/wiki/Classes:Fist
    Obituary "%o was charmed by %k's thumbs up."
    AttackSound "PLTHMB"
    Inventory.PickupMessage "You got the ability to do a thumbs up!"
    Weapon.SlotNumber 1
    Weapon.Kickback 100
    +WEAPON.MELEEWEPON
    States
    {
        Ready:
            PLFS A 1 A_WeaponReady
            Loop
        Deselect:
            PLFS A 1 A_Lower
            Loop
        Select:
            PLFS A 1 A_Raise
            Loop
        Fire:
            PLFS B 30 A_PlaySound("PLTHMB")
            Goto Ready
        Spawn:
            PLFS C -1
            Stop
    }
}
```

TCS 198 - Project 7: Interfacing DOOM

Assigned: Thursday, November 16

Due: Tuesday, November 21

Assignment

After playing DOOM and learning to design in DOOM, this week we will be interfacing with DOOM. What changes when we focus on the computer's hardware, the controller, the position of the player in relation to the screen? How can we change the game by changing the way it's played? In order to interface with the game we will be modding mice and programming microcontrollers in class together.

Requirements

Please bring the following materials to class on Tuesday, November 21:

Cheap USB Three Button Mouse:

- <https://www.amazon.com/AmazonBasics-3-Button-Wired-Mouse-Black/dp/B005EJH6RW>

Arduino Uno (Rev 3) or a variation thereof:

- <https://store.arduino.cc/usa/arduino-uno-rev3>

- <https://www.amazon.com/Elegoo-Project-Starter-Tutorial-Arduino/dp/B01D8KOZF4>

Following the work of Louis Roots at Bar_SK in Melbourne, together we will learn to open a computer mouse, desolder the clickers, resolder new buttons in order to change the interface of DOOM. Then we will use Arduinos to program an LED to blink, a piezo to buzz, and, finally, a relay to switch on and off. Using this relay we will replace our new button to create a computer controlled DOOM through the manipulation of hardware.

Tutorials

"Mouse destruction/repurposing" by Louis Roots -

<https://www.youtube.com/watch?v=TMpjRNJ1I1M>

<https://www.arduino.cc/en/Tutorial/BuiltInExamples>

- <https://www.arduino.cc/en/Tutorial/Blink>
- <https://www.arduino.cc/en/Tutorial/Button>
- <https://www.arduino.cc/en/Tutorial/AnalogInOutSerial>

TCS 198 - Final Project: Presenting and Publishing DOOM

Assigned: Thursday, November 21

Presentation: Thursday, December 7

Publication: Friday, December 15

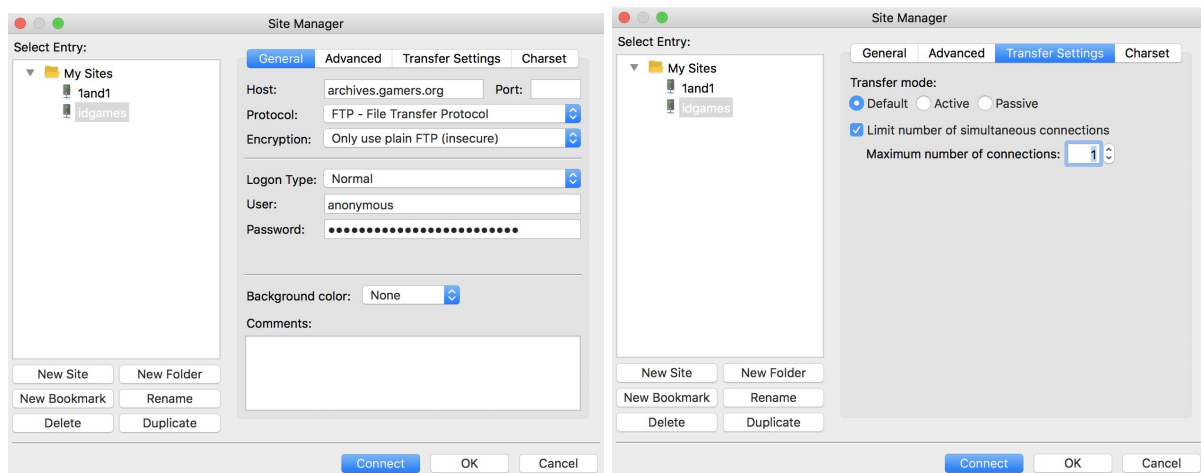
Assignment

Using the tools, techniques, and theories you've learned while playing, touring, speedrunning, mapping, reskinning, scripting, and interfacing with id Software's DOOM throughout the quarter, combine these techniques to create a unique experience, an aesthetic experiment, a personal biography, a historical document, or a political statement for presentation on Thursday, December 7, 2017 and a publication on Friday, December 15, 2017.

Requirements

In order to publish your final project on the idgames archive, you'll have to create a .ZIP file that contains your .WAD alongside a .TXT file with your metadata. To begin this process:

1. Go to <https://www.doomworld.com/register> and create an account.
2. Go to <https://www.doomworld.com/vb/thread/31922> and read how to upload your .WAD/.TXT.
3. You'll also need to generate a text file from a template or generator (I recommend <https://www.doomworld.com/idgames/?textmaker>).
4. If you don't have one, you'll need to download an FTP client (I recommend Filezilla from <https://filezilla-project.org/>, see first image below).
6. Be sure to set FileZilla to only make 1 connection at a time (see second image below). The server is very sensitive and I had a hard time logging on—be sure to treat it gently (one file at a time, 5 minute break between connections etc.)
5. Finally, you might need to change out your music if you don't have rights to it (I recommend replacing it with royalty free music from <https://archive.org/details/audio> or <https://freesound.org/browse/>).



If you're successful your name.txt and name.zip should sit alongside others in the pub/idgames/incoming folder and await admin curation onto the official listing. Please be sure that the name of these files is less than 8 letters and upload them to pub/idgames/incoming and canvas (so we have our own archive!) by 8PM on Friday, December 15.