

HAA/ENGCMP 0425: Digital Humanity

Syllabus for Spring 2019

University of Pittsburgh

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Description

How have computational devices affected the way we think about our own humanity? Our relationship to digitality has changed from the mainframe to the smartphone, but throughout, computers have processed huge amounts of data, kept track of our (or our enemies') activities, made our lives more fun or at least more complicated, allowed us to communicate with each other, and archive knowledge on a broad scale. What roles do computers play in our lives, and what role do we play in theirs? What are the borders between humans and computers, or can they be drawn at all?

This course prepares students to critically examine the intersections between digital devices and human life. Covering topics such as the relationship between computers and humans, surveillance, big data, and interactivity and games, we question what it means to be human in a space of pervasive digitality. Students will read philosophy, fiction, essays, book excerpts, and watch movies and play games. Assessment will be based on regular online posts to WordPress, a take-home midterm examination, a reflective synthesis of online posts, and class participation. The course fills the Philosophy and Ethics General Education requirement, is a gateway course for the Digital Narrative and Interactive Design major (<https://www.dnid.pitt.edu/>) and meets three times per week: twice for lecture, once for recitation/lab.

Learning Outcomes

After successfully completing this course, students will be able to:

1. Demonstrate a more sophisticated understanding of the ways digital technologies affect their lives and the lives of others, including potential effects on the experience and concepts of freedom, security, social relations, cognition, and human and digital consciousness (e.g., artificial intelligence).
2. Articulate ways that digital technologies may be used effectively and ethically in their academic and professional careers.
3. Assess their own work, including its suitability for particular audiences, and their strengths and weaknesses as composers.
4. Use different software packages or web services that process text, still images, moving images, and audio files in order to reflect on readings and discussion about digital technologies.

Assignments

Readings

All readings will be due on the Mondays of the week for which they are listed, and we will discuss them throughout that week. There are no required books for the course, and all readings will be available through WordPress or online.

WordPress Posts

Each week you will be asked to post a critical response to the ideas and concepts brought up in class and in the readings to the course WordPress site. The instructors have provided prompts to guide you in creating your posts to the site, all of which are on the syllabus for their given week. Sometimes you will be asked to respond with text, but sometimes with still images, moving images, or audio. You are also responsible for responding thoughtfully to one other student's WordPress post each week (100+ words).

The address of the WordPress site is: <http://pittdigitalhumanity.org/>

Your weekly posts and your responses to other posts are due by noon on Wednesdays. In other words, **readings are due on Mondays; WordPress posts and responses are due on Wednesdays.**

The WordPress site is private and invitation-only and will be accessible only to members of the class. The instructors may share the work on this site to selected faculty members at the University of Pittsburgh for purposes of showcasing the course. Any other public use of these materials will be requested specifically from you. If you have questions about your WordPress posts at any time, feel free to get in touch with one of the instructors for feedback.

Image, audio and video assignments

Some of your weekly WordPress posts as well as your Midterm and Final will be in non-textual format. We ask you to compose in images, audio, and video in order to accomplish some of the course learning goals (see especially #4 above). In particular, we want you to have an opportunity to engage with the material in the course in digital ways, and in ways that you might be less familiar with in your other courses at Pitt. We do not expect perfection in these modes of composition. Some of you might be experienced, others are novices. But we do expect that you compose thoughtfully in these media formats, and that you use your resources at Pitt to help you succeed in these compositions.

Some resources you might want to use: visits to the UTA's office hours, Hillman Library's One Button Video Recording Studio (<https://www.library.pitt.edu/one-button>) and Whisper Sound Recording booth (<https://www.library.pitt.edu/whisper-room>), open homework hours at the English Department's Digital Media Lab in 435 CL (<https://dmap.pitt.edu/hours>), and equipment loans through Hillman (<https://pitt.libguides.com/equipment/hillmanequipmentcollection>).

Graded WordPress Feedback (First and Second)

We will provide graded feedback on your WordPress posts twice during term, and the entire class will also be discussing selected posts periodically in recitation. We will take both the posts and the responses you add to the site into consideration when composing your grade.

Midterm Exam

The midterm exam will be a take-home assignment. We will distribute the exam prompt on Weds, Feb 20 and the exam will be due to WordPress by the end of the day of Fri, Mar 1.

Reflective Synthesis (Final)

The final exam will be a take-home assignment. We will distribute the exam prompt on Mon, Apr 8, and the exam will be due on Apr 19.

Face-to-Face Participation

Your face-to-face participation grade will be based on your attendance and your substantive participation in large and small group work in both lecture and recitation. Once a week, at the beginning of each lecture, you will be asked to write an "Entry Card," on which you offer one thing that you were curious about in the readings and one connection that you can make between the readings and your lived experience. The quality of your work on the Entry Cards will be factored into this face-to-face participation grade.

It will be important to attend lectures *and* recitations as this latter meeting is the time when we will mull over and extend the information found in the readings for the week as smaller groups. Missing more than two lectures or recitations will negatively affect your face-to-face grade. If you miss more than two weeks' worth of class, it will be very difficult for you to pass the course.

We will be offering two movie nights during the term, and one of them will be mandatory to make up for the later start date for Spring Term 2019 (see below). If you attend both, the second movie night can be used to replace attendance for one missed lecture or recitation. You will also be asked to post an accompanying WordPress piece that summarizes your thoughts on the movie's relationship to the themes of the class. You need to both attend the movie and write the post to get credit.

You have another opportunity to make up one absence: Attend a Steiner lecture at CMU's Studio for Creative Inquiry. The lectures are public and relevant to our course--feel free to attend all of them! You can make up one absence by attending a lecture, and posting to the WP site about that lecture and its connections to the course. The schedule is posted here:

<http://studioforcreativeinquiry.org/events/spring-2019-steiner-lectures-in-creative-inquiry>

The other opportunity to make up one absence is to attend a workshop offered by Hillman Library:

<https://pitt.libcal.com/calendar/today/?cid=2274&t=d&d=0000-00-00&cal=2274&ct=35349>

Assessment

First Feedback on WordPress Posts	Week of February 18th	15%
Second Feedback on WordPress Posts	Week of April 8th	20%
Midterm Exam (take-home)	March 1st (by noon, to WordPress)	20%
Reflective Synthesis (Final)	April 19th (by noon, to Courseweb)	25%

Face-to-Face Participation	all term	20%
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Course Policies

Inclusivity Policy

Your success in this class is important to us. We recognize that everyone learns differently. Although we have designed the course to tap into different learning styles (online participation, f2f participation, videos, text, drawing, handwriting, etc.), we recognize that everyone will find different aspects of the course challenging. Challenge is good! But if there are aspects of this course that prevent you from learning or exclude you, please let us know as soon as possible. Together we'll develop strategies to meet both your needs and the requirements of the course. We encourage you to visit us in office hours (see above) and also Disability Resources and Services to determine how you could improve your learning as well. Disability Resources and Services is located at 140 William Pitt Union, 412-648-7890 or 412-383-7355 (TTY)--please contact them and us as early as possible in the term. If you need official accommodations, you have a right to have these met. There are also a range of resources on campus, including the [Writing Center](#) and the [Counseling Center](#), and the online mental health resource, [ULifeline](#).

Names and Pronouns Policy

Sometimes it's hard to know what to call your instructors: when in doubt, ask them! We go by Prof. Vee and Prof. Langmead and use she/her pronouns. Erin O'Rourke, the undergrad TA for the course goes by Erin and uses she/her pronouns. If you have preferences about pronouns and naming for the class, please let us know and we will respect your wishes. We also request that you respect the wishes of our classroom community.

Academic Integrity Policy

Cheating or plagiarism on any assignment or exam will not be tolerated. Plagiarism is using someone else's words, research, or ideas as if they are your own. Please see us if you are unclear about this policy, or check out Pitt English's resource on [Understanding and Avoiding Plagiarism](#). If you ever use someone else's text word for word in your own writing, you must enclose those words in quotation marks and cite the source; if you paraphrase from a source, you must cite it as well. If you try to pass off someone else's writing or research as your own in any assignment for the course, you may receive an F for the course, and be reported to the Dean's office for disciplinary action pursuant to the school's academic integrity code (<http://www.as.pitt.edu/faculty/policy/integrity.html>).

Email Communication Policy

If you do not ordinarily use your Pitt email address, please make sure that the Pitt address is forwarding properly to whatever email address you do use, since we will be sending messages this way. We expect that you will read your email regularly and may communicate about any course changes via email. The University provides an email forwarding service that allows students to read their email via other service providers (e.g. Google, Yahoo), but you do so at your own risk. To forward email sent to your University account, go to <http://accounts.pitt.edu>, log into your account, click on Edit Forwarding Addresses, and follow the instructions on the page. Be sure to logout of your account when you have finished. (For the full email Communication Policy, go to <http://www.bc.pitt.edu/policies/policy/09/09-10-01.html>.)

Before emailing your instructors a question about the course, please check the syllabus to see if your answer is here. The instructors for your course will attempt to answer your emails about the course promptly.

Weekly Chart

Scheduling Note

Because of the newly-instituted, later start date of Pitt’s Spring Terms, all courses that meet on Mondays during spring are required to make up a class session outside of the traditionally-scheduled class meetings. For this additional class session, **you will be required to attend a movie night organized by the instructors and then to post an accompanying WordPress piece that summarizes your thoughts on the movie’s relationship to the themes of the class.** There will, in fact, be two such movie nights offered in total. The exact times will be arranged by the instructors, the undergraduate TA, and the participants in the class, and they will take place before Finals Week, as required.

Week	Subject
1. January 7/9	Introduction / Creating Computers
2. January 14/16	Can Machines Think? Automata and Algorithms (AI I)
3. January 23	Hardcoding Abstractions
4. January 28/30	Processing Encoded Information
5. February 4/6	Surveillance Society
6. February 11/13	Watching Networks Watching You
7. February 18/20	Computers + Humans: Augmentation or Symbiosis?
8. February 25/27	Midterm Week
9. March 4/6	Artificial Intelligence and the Human Mind (AI II)
Spring Break	
10. March 18/20	Human Labor in Computing
11. March 25/27	Old-School Games
12. April 1/3	Computational Creativity
13. April 8/10	Becoming a Digital Citizen
14. April 15/17	Synthesis and Peer Evaluation

Class Schedule

This schedule will change somewhat over the course of the semester—readings cut or swapped out, etc. Please check <http://pittdigitalhumanity.org/pages/syllabus> for the up-to-date version of this syllabus.

Week 1: What Are Computers? What Are Humans? Creating Computers

Where did computers come from, and what makes them tick? We'll start to look at the history of information processing and digital computing and learn a bit about how contemporary computers and peripherals actually work.

- Martin Campbell-Kelly, William Aspray, Nathan Ensmenger, and Jeffrey Yost, *Computer: A History of the Information Machine*, Third Edition (Boulder, CO: Westview Press, 2014), 21-40 ("The Mechanical Office"), 65-85 ("Inventing the Computer"), 253-264 ("Broadening the Appeal"). [Available to read online through PittCat]
- Bettina Bair, "Inside Your Computer," *TED-Ed*, July 1, 2013. <https://youtu.be/AkFi90IZmXA>
- Daisuke Wakabayashi and Kate Conger, "Uber's Self-Driving Cars Are Set to Return in a Downsized Test," *The New York Times*, December 5, 2018. <https://www.nytimes.com/2018/12/05/technology/uber-self-driving-cars.html>
- Wilton L. Virgo, "How Does Your Smartphone Know Your Location?" *TED-Ed*, January 29, 2015. <https://youtu.be/70cDSUI4XKE>
- Optional: *Hidden Figures*, 2016 movie, directed by Theodore Melfi. Available at Hillman's Stark Media Services.
- **WordPress Post for Week 1:** Accept the invitation to join the WordPress when it arrives in your email inbox--check your Quarantined Messages folder on found through <http://my.pitt.edu> (not your Junk Folder in Outlook, but "Quarantined Messages"), the invitation very likely went there. Then, set up your WordPress account, and write a first post answering two questions: 1) What's most exciting to you about computers and computation? 2) What makes you fearful about computers and computation? Your post should be 200 words or more, and it could cover the future or past of computation, your personal relationship with computers, your chosen major or profession or computers, etc. Feel free to integrate images or links in your post. The best posts will go beyond simple observations. After you post, please read some of your classmate's post and choose at least one to comment on. Again, we're looking for something more substantive than, "hey, interesting idea." You can make connections to your own post, offer additional information, or links, observations, history, etc. Categorize your post Week 01.

Week 2: Can Machines Think? Automata and Algorithms

We have long hoped that machines could think and learn like humans, from the "Mechanical Turk" that impressed the French queen and Benjamin Franklin in the late 18th century, to the early days of computational artificial intelligence in the 1950s, to our reliance on Google's algorithms to tell us what's important, to the use of algorithms in determining prison sentencing. How successful are these attempts to make machines do our thinking for us? How do these automata and algorithms reinforce or perpetuate human biases, or do they correct these biases? What does our use of these automata and algorithms say about us?

- Alan Turing, "Computing Machinery and Intelligence," *Mind: A Quarterly Review of Psychology and Philosophy* 59(236):433-460, Oct 1950; reprinted in *The New Media Reader*, Eds. Montfort and Wardrip-Fruin, MIT Press, 2003. [Available as a pdf on Pitt Box](#).
- "The Box that AI lives in," episode of *Secret History of the Future* podcast, Sept 10, 2018. <https://slate.com/technology/2018/09/secret-history-of-the-future-podcast-intro.html> 33min. Covers the original "Mechanical Turk" from 1780s, Amazon's Mechanical Turk, ReCaptcha, connections between AI and human labor. Listen to alongside this article: Ella Morton, "Object of Intrigue: The Turk, a Mechanical Chess Player that Unsettled the World," *Atlas Obscura*, Aug 18, 2015, <https://www.atlasobscura.com/articles/object-of-intrigue-the-turk>.
- Safiya Umoja Noble, "Challenging the Algorithms of Oppression," talk for the *Personal Democracy Forum*, published on *YouTube*, June 15, 2016, 12m18s, <https://www.youtube.com/watch?v=iRVZozEEWIE> [contains references to pornography and racism]

- Audrey Watters, "Clippy and the History of the Future of Educational Chatbots," Hack Education, September 14, 2016, <http://hackeducation.com/2016/09/14/chatbot>
- Optional: *Black Mirror*, "Be Right Back," February 11, 2013. Available on Netflix. [contains sex scenes]
- **WordPress Post for Week 2:** Tell a story about an algorithm or automata that has impacted your life. If you're having trouble thinking of something, consider your educational history, your life as a college student, your shopping habits, your transportation routines, and your interactions with law enforcement or government. How did this algorithm or automata come into your life, what was its intent, how did it work, and what did it do to/with/about you? What was the nature of its "intelligence" and to what extent did you/do you trust it? Your WordPress post should be in audio-only format, approximately 2 minutes. You can upload audio directly to WordPress, but you may alternatively want to use [SoundCloud](#) to host your audio clip, then link that to your WordPress post. Please listen to your audio prior to posting to ensure that it is playable, that the volume is appropriate, and that it says what you'd like to say. The best posts will consider their chosen algorithm in light of our readings and be interesting to listen to. Categorize your post Week 02. Remember to do your response comment as well--the comment can be in plain text.

Week 3: Hardcoding Abstractions

You may have heard that computers really only understand 1's and 0's. So, how do the things you type into your computer get translated into language the computer can understand?

- Bell Laboratories, "Incredible Machine," film from 1968, <https://youtu.be/iwVu2BWLZqA>.
- Jennifer Light, "When Computers Were Women." *Technology and Culture* 40, no. 3 (1999): 455-483. http://muse.jhu.edu/journals/technology_and_culture/v040/40.3light.html.
- **WordPress Post for Week 3:** Write a WordPress post, using both text and images, documenting one full day of your interactions with computational devices. Reflect on what you find. Were you surprised by anything? Did anything you learned by doing this exercise change your mind? The best posts this week will use the words and images together creatively to narrate the day and will focus on computational technologies rather than simply electronic devices. Categorize your post Week 03.

Week 4: Processing Encoded Information

One of the reasons humans turn to computers is that they can process a lot more information than our brains can, and much faster. Historically we've used computers to scale up information processing beyond the capacity of the individual human brain: artillery tables, mathematical fractals, reading millions of historical or literary texts, or handling exabytes of data per day from the proposed Square Kilometer Array of radio telescopes. What does it mean to rely on a computer to deal with all the details? How do computers make sense of things that we cannot? Or can they? What are the compromises and assumptions we are making?

- Paul Ford, "What is Code," *Businessweek*, electronic edition, June 11, 2015, <http://www.bloomberg.com/graphics/2015-paul-ford-what-is-code/>, Section 1 (all), Section 2-2.4, Section 4 (all), Section 7.5.
- Jacob Gaboury, "A Queer History of Computing: Part Three," *Rhizome*, April 9, 2013. <http://rhizome.org/editorial/2013/apr/9/queer-history-computing-part-three/>.

- James Gleick, *The Information* (New York: Pantheon Books, 2011), 398-426 (“New News Every Day”) and 413-426 (“Epilogue”). Available for download here: <https://pitt.box.com/s/qnqrgkzrywsp3yvrrim6wnp59b7rydjl>.
- “30 for 30 Shorts: The Schedule Makers,” directed by Joseph Garner, 12m26s, ESPN, 2013 [<https://vimeo.com/75943437>]
- **WordPress Post for Week 4:** Look back over your WordPress post for week 3, and think about what you found carefully. You clearly inhabit a socio-technical system. Where in this system do you see that computers make rules you are subject to? Where can you break those rules to accommodate special situations? Where can you not break those rules and why not? Can you imagine a scenario in which you make rules that the computers are subject to? What would that (does that) look like? Post should be in a text-only format. You're aiming for around 500 words. Categorize your post Week 04.

Week 5: Surveillance Society

This week, we explore one of the major uses for computers' ability to process massive amounts of data: surveillance. As you sit at a screen—your smartphone, an ATM, your Facebook News Feed, or a wall of lighted panels presented for public use—you are watching something. Are you being watched back? Spoiler: yes.

- Gabriel J.X. Dance, Michael LaForgia and Nicholas Confessore, "As Facebook Raised a Privacy Wall, It Carved an Opening for Tech Giants," *New York Times*, December 18, 2018, <https://www.nytimes.com/2018/12/18/technology/facebook-privacy.html>
- Rob Kitchin, “No Longer Lost in the Crowd? How People’s Location and Movement Is Being Tracked,” *The Programmable City*, December 3, 2015, <http://www.maynoothuniversity.ie/progcity/2015/12/no-longer-lost-in-the-crowd-seven-ways-peoples-location-and-movement-is-being-tracked/>.
- Brian Merchant, “Looking Up Symptoms Online? These Companies Are Tracking You,” *Motherboard*, February 23, 2015, <http://motherboard.vice.com/read/looking-up-symptoms-online-these-companies-are-collecting-your-data>.
- Optional: "Arkangel," episode of *Black Mirror*, directed by Jodie Foster, *Netflix*, Dec 29, 2017.
- **WordPress Post for Week 5:** This week, we want you to notice all of the digital systems that are tracking you. You can focus on one day to remind you of your general activities (like you did in Week 3), but you may find it useful to think about this over a couple of days to get a more general picture of the places and ways in which you’re being tracked. Consider surveillance cameras, educational technologies, digital communications, frequent shopper cards or IDs, transportation networks, GPS, and other such technologies. Also, Pitt is tracking you. How? Write up a list of all of the activities in which you think you are tracked, and then write, reflecting on the following questions: Who has this data? In what form does it exist (database, video, logs, etc.)? What permission do they need from you to collect it, if any? How long do you think they keep it and for what purposes? Post should be audio accompanying a series of images, 2 minutes long. Consider the medium's affordances: the best posts will combine voice/audio creatively with images in a sequence that reinforces your narrative. Categorize your post Week 05.

Week 6: Watching Networks Watching You

Digital technology speeds up and complicates surveillance feedback loops. Who or what is recognizing your face or monitoring your activities? To what degree are you in control of this surveillance? Our modes of looking, typing, hearing and speaking interact to create a system where we are not only being watched by devices, corporations and government institutions, but we are also watching each other.

- Michel Foucault, "'Panopticism' from *Discipline and Punish*," in *Ways of Reading*, 9th ed., eds. David Bartholomae and Anthony Petrosky (New York: Bedford/St. Martin's, 2010 (orig. 1975)), 282-295 (Abridged). [Available on Pitt Box](#).
- Nathan Jurgenson, "The Facebook Eye," *The Atlantic*, January 13, 2012, <http://www.theatlantic.com/technology/archive/2012/01/the-facebook-eye/251377/>
- Kate Losse, "The Male Gazed: Surveillance, Power, and Gender," *Model View Culture*, January 13, 2014, <https://modelviewculture.com/pieces/the-male-gazed>
- Drew Harwell, "Fake-porn videos are being weaponized to harass and humiliate women," *The Washington Post*, December 30, 2018, https://www.washingtonpost.com/technology/2018/12/30/fake-porn-videos-are-being-weaponized-harass-humiliate-women-everybody-is-potential-target/?noredirect=on&utm_term=.13e93edeb5b3
- Optional: [John Oliver's Last Week Tonight on Online Harrassment](#) (June 21, 2015), or Ashley Judd's TedTalk, [How Online Abuse of Women has Spiraled Out of Control](#) (January 18, 2017). Be aware that both of these videos use explicit language and describe some nasty stuff, although it's probably nothing you don't already know.
- **WordPress Post for Week 6:** Choose one of the surveillance systems or devices that you listed and wrote about for Week 5 or the #SurveillanceScavengerHunt from the recitation makeup in Week 4, and dive more deeply into how it works. Figure out as much as you can about who owns it, what technological mechanisms and algorithms are behind it, where your data is held and for how long, what it can be used for, etc. You may find it helpful to read privacy policies (you might want to check out the website "Terms of Service; Didn't Read," <https://tosdr.org/>), search for relevant legal cases, publicity announcements about an amazing new system that will blah blah blah... Write up the interesting stuff you found, as well as what you couldn't find. How does all of this impact you? You may choose any medium you wish to express yourself. If it is time-based, make it around 2 minutes long, if it is text-based make it around 500 words. Categorize your post Week 06.

Week 7: Computers + Humans: Augmentation or Symbiosis?

How would you describe your relationship to computers? Do they help you do your work or do they actually tell you what work you need to do? Do they augment your abilities, or could not not do what you want to do without them? What are the ideas wrapped up in our dependence on the digital infrastructure that now wraps the globe?

- Doug Engelbart, "Augmenting Human Intellect: A Conceptual Framework," *SRI Summary Report AFOSR-3223*, Prepared for the Director of Information Sciences, Air Force Office of Scientific Research, Washington DC, Contract AF 49(638)-1024, SRI Project No. 3578, 1962, excerpts. Posted to Box here: <https://pitt.box.com/s/npzyzrqhqcu4ktprs41lepvt9g63d0>.
- Neal Stephenson, *Diamond Age* (New York: Bantam Books, 1995), 1-21. Posted to Box here: <https://pitt.box.com/s/i4a2s3uly851yhrutobyqn7wrk46c2qx>.

- J.C.R. Licklider, "Man-Computer Symbiosis," in *IRE Transactions on Human Factors in Electronics*, vol. HFE-1, no.1 (March 1960): 4-11.
<http://groups.csail.mit.edu/medg/people/psz/Licklider.html>
- Optional: *Black Mirror*, "San Junipero," directed by Owen Harris, February 11, 2013. Available on Netflix [contains sex scenes].
- **WordPress Post for Week 7:** Using concepts and readings from the course so far, reinvent yourself as a cyborg. Choose at least three enhancements and changes that reflect somehow who you believe yourself to be. Create a diagrammatic image of what that would look like. Your diagram could be hand-drawn or digitally constructed, but should be posted digitally. In an accompanying textual post, describe your changes and reflect on what they mean about your human relationship to technology and computers, your perceived weaknesses and strengths, and how willing you are to give yourself over to the machine. Categorize your post Week 07.

Week 8: Midterm Week

- No readings this week. Class on Monday will meet as normal, and will be a review for the midterm. Wednesday's class and recitation will be optional office hours with Prof. Vee and Erin. Prof. Langmead will be available 12-1

Week 9: Artificial Intelligence and the Human Mind (AI II)

Can computers truly become thinking, sentient beings? Can humans become digital computers? Massive and intricate computational systems attached to government defense programs in the 1960s were called "command and control" systems for the way that they allowed centralized control and coordination both of the artillery and the humans who ran them.

- Michael Brennan, "Can Computers Be Racist? Big Data, Inequality, and Discrimination," *Ford Foundation's Equal Change Blog*, November 28, 2015:
<https://www.fordfoundation.org/ideas/equal-change-blog/posts/can-computers-be-racist-big-data-inequality-and-discrimination/>. The text of the blog post and the two short video clips are required readings. If you are interested in learning (much) more about this subject, please also feel free to watch the hour-long video recording at the bottom of the post featuring more from Latanya Sweeney and Alvaro Bedoya.
- Meredith Broussard, *Artificial Unintelligence: How Computers Misunderstand the World* (Cambridge, MA, 2018), "Hello, AI," "Hello, Data Journalism," AND, "Machine Learning: The DL on ML," 31-47; 87-119. <https://ebookcentral.proquest.com/lib/pitt-ebooks/detail.action?docID=5355856> or on Box <https://pitt.box.com/s/klxfo6p41g8mv4gpkpcnazac84usdi6x>
- Scott Rosenberg (interview with Kate Crawford), "Why AI Is Still Waiting for Its Ethics Transplant," *Wired*, November 1, 2017. <https://www.wired.com/story/why-ai-is-still-waiting-for-its-ethics-transplant/>.
- "Unsupervised Learning - Georgia Tech - Machine Learning," *Udacity*, 4m23s, February 23, 2015, <https://youtu.be/1qtflYSJY>.
- "M[achine] L[earning] in the Google Self-Driving Car," *Udacity*, 2m12s, October 27, 2014, <https://youtu.be/IL16AQItG1g>.
- **WordPress Post for Week 9:** Tell a structured narrative—using only images—about the improbability, possibility, or inevitability (choose one) of computers surpassing humans in

intelligence. Use between 5 and 10 images. You can use images you find online, pictures you take yourself, or images you design yourself (say in Photoshop or old fashioned pen-and-ink). You are welcome to use stock images you find on the Web, but please choose mindfully. The best posts will be show something more than just humans being blown up by computers; they will instead have complex, possibly even ambiguous narratives. If you choose a graphic novel style (or even a series of memes/animated GIFs), you are welcome to use text within the frame of the images. Categorize your post Week 09.

Spring Break

Week 10: Human Labor in Computing

Before we created devices in metal and glass to calculate, humans did this work: the infamous "Mechanical Turk" from the late 18th century, women "computers" performing the complex calculations that were needed for warfare and science until the 1940s. Now, there's a lot of talk about how computers will replace humans in certain jobs. This was true for human mathematical calculators in the 1940s, it has been true in some manufacturing contexts, and now computers threaten to replace drivers. But computers also introduce new jobs, too--jobs to keep humans from using computers for ill.

- Adrian Chen, "The Laborers Who Keep Dick Pics and Beheadings Out of Your Facebook Feed," *Wired.com*, October 23, 2014, <http://www.wired.com/2014/10/content-moderation/>. [Please be forewarned, this article contains references to explicit violent and sexual content on the Internet. If you would like to avoid this content, please read this article instead: Marc Burrows, "They Called it the Worst Job in the World: My Life as a *Guardian* Moderator," *The Guardian.com*, April 18, 2016, <https://www.theguardian.com/technology/2016/apr/18/welcome-to-the-worst-job-in-the-world-my-life-as-a-guardian-moderator>]
- Simon Parkin, "The YouTube stars heading for burnout," *The Guardian*, September 8, 2018, <https://www.theguardian.com/technology/2018/sep/08/youtube-stars-burnout-fun-bleak-stressed>
- Thomas Davenport and Julia Kirby, "Beyond Automation," *Harvard Business Review* (June 2015): <https://hbr.org/2015/06/beyond-automation>.
- Lisa Nakamura, "Indigenous Circuits (backstory)," *Computer History Museum Blog*, January 2, 2014: <http://www.computerhistory.org/atcm/indigenous-circuits/>. (In this blog post, Nakamura describes her research process for uncovering some of the surprising and racialized history of semiconductor manufacturing. *Optional* reading: the article she refers to is available here: Lisa Nakamura, "Indigenous Circuits: Navajo Women and the Racialization of Early Electronic Manufacture," *American Quarterly* 66 (December 2014): 919-941, <https://lnakamur.files.wordpress.com/2011/01/indigenous-circuits-nakamura-aq.pdf>.)
- **WordPress Post for Week 10:** If you think about it, when you are circulating memes and stories online, you are working for the network. Your task this week is to design your own, original viral campaign. It could support a local or global political cause, or it could be satirical or just-for-fun (although please do steer clear of misogyny, hate speech, etc.). Your campaign's central artifact could take the form of a meme-image, a hashtag, a Facebook post, or something else you think could be potentially viral. To accompany this artifact, write a 250-word plan for deploying your viral campaign, considering what makes something go viral, and arguing for why your work will

spread. The best posts will catch attention and have a solid plan for distribution and anticipated success. Categorize your post Week 10.

Week 11: Old-School Games

Initially conceived almost entirely as a device for work (and destruction), computers quite quickly became an area for creativity and play. We make music, play games, socialize and challenge ourselves on our computers. This week, we'll look at some of the games and fun of computers in the 1970s and '80s.

- Stewart Brand, "Spacewar: Fanatic Life and Symbolic Death Among the Computer Bums," *Rolling Stone* (December 7, 1972): 50-58. Available from Box here: <https://pitt.box.com/s/3eeywx3jketyo0ws8j26c3x92kbumbd0>.
- Leigh Alexander, "The Original Gaming Bug: Centipede Creator Dona Bailey" [Interview], *Gamasutra*, Aug 27, 2007. http://www.gamasutra.com/view/feature/130082/the_original_gaming_bug_centipede_.php?page=all
- *WarGames*. Directed by John Badham. Santa Monica, CA : MGM Home Entertainment, 1983.
- **WordPress Post for Week 11:** Play a game on the Internet Arcade (<https://archive.org/details/internetarcade>). Write a review of the game (250 words) and excerpt the most interesting game moments in an accompanying video walkthrough that lasts no longer than 2 minutes. In your voiceover to the walkthrough, talk about what "play" means to you in the context of your everyday lived experience and how this game did or did not match up to what your idea of "ideal play" might be. Don't just complain about the controls! What does or does not make something fun? Categorize your post Week 11.
- Note that you may experience some difficulty in getting the game to actually work in your browser. Part of this assignment is about working through these difficulties and thinking about when, how, and why you may want to give up on interacting with a computer when you aren't getting what you need to get out of the experience. [Hint: Your browser has to run an arcade emulator and the game itself, and you'll be using a different set of controls (your keyboard, an external device if you have one) than the arcade machine had. Read the explanation and the comments below the game for some help. Firefox is the browser they recommend, and if you're running MacOS, you may want to or have to disable some keyboard shortcuts that interfere with the controls.]

Week 12: Computational Creativity

- Michael Mateas and Nick Montfort, "A Box, Darkly: Obfuscation, Weird Languages and Code Aesthetics," in *Proceedings of the 6th Digital Arts and Culture Conference*, IT University of Copenhagen, 1-3 December 2005, 144-153, http://nickm.com/cis/a_box_darkly.pdf.
- Michael Edwards, "Algorithmic Composition: Computational Thinking in Music," *Communications of the ACM*, 2011, <http://cacm.acm.org/magazines/2011/7/109891-algorithmic-composition/fulltext>
- Stephen Ramsay, "Algorithms Are Thoughts, Chainsaws are Tools," 2010 (23-minute video about livecoding, 2010). <https://vimeo.com/9790850>.
- Check out some examples of computational creativity: Johnny Sun and Hannah Davis, et al.'s The Laughing Room installation: <https://shass.mit.edu/news/news-2018-inside-laughing-room>;

Allison Parrish's portfolio of computational word experiments: <http://portfolio.decontextualize.com/> and twitterbots <https://twitter.com/aparrish/lists/my-bots/members>; Winnie Soon's portfolio: http://siusoon.net/category/creative_works/; OFFAL (Orchestra for Females and Laptops): <https://offal.github.io/>; Shelly Knotts' algorithmic sound compositions: <https://soundcloud.com/shelly-knotts>; Primavera DiFillippi's Plantoid, a blockchain-based lifeform: <http://okhaos.com/plantoids/>)

- **WordPress Post for Week 12:** Give us a glimpse at an algorithm you perform regularly. We do mean algorithm, and not simply routine. If you want a bit of help understanding what an algorithm is, the first 30 seconds of this Khan Academy video might help: <https://www.khanacademy.org/computing/computer-science/algorithms/intro-to-algorithms/v/what-are-algorithms>. Could your behavioral algorithm be automated? Would you like it to be automated? Why or why not? Your post could be in the form of a screen capture, video, audio, a series of still images, a written post, hybrid image/text, whatever. Please note that while the format for this week is open, you should keep in mind our time/length guidelines for other WordPress posts: keep time-based media to around 2-3min, and text only should be around 500 words, etc. The best posts will consider deeply what it means to perform algorithms as a human and what it means to perform algorithms as a computer, and how those are different and interact within contemporary patterns of automation. Categorize your post Week 12.

Week 13: Becoming a Digital Citizen

How would you describe the relationship humans have with computers? What changes us when we interact with them? How might we all go out into our various workplaces and fields of study and consider this relationship differently? The concluding week will focus on student work and drawing overall conclusions from the discussions that have taken place over the term.

- Bonnie Stewart, "Digital Identities: Six Key Selves of Networked Publics," *thetheoryblog*, May 6, 2012, <http://theory.cribchronicles.com/2012/05/06/digital-identities-six-key-selves/>. (You can skip the first part--just skip down to after the video where she notes the six key selves.)
- ICANN's Beginner's Guide to Domain Names : <https://www.icann.org/en/system/files/files/domain-names-beginners-guide-06dec10-en.pdf> (This is a big document that's not meant to be read cover to cover--just skim through to understand a bit about how domain names work.)
- Troy Hunt, "Going Dark: Online Privacy and Anonymity for Normal People," <http://troyhunt.com>, May 17, 2016, <https://www.troyhunt.com/going-dark-online-privacy-and-anonymity-for-normal-people/>
- Rebecca Heilweil, "How Close Is An American Right-To-Be-Forgotten?," *Forbes*, Mar 4, 2018, <https://www.forbes.com/sites/rebeccaheilweil1/2018/03/04/how-close-is-an-american-right-to-be-forgotten/>

Week 14: Synthesis of the Course and Peer Evaluations of Final Work