



HSTAA 317: HISTORY OF THE DIGITAL AGE

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Online, MWF 11:30-12:30 (synch and asynch, see note below)

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Understanding the present and future of our high-tech world requires understanding its past. This course examines the evolution of the American computer hardware and software industries from the Manhattan Project and mainframes of the 1940s to the social media and software giants of today. We'll explore why American technology companies (in Silicon Valley, Seattle, and elsewhere) became such a successful and consequential force in business and society, unearth the human stories and political histories behind the technology, and historicize and contextualize today's debates about digital technologies and platforms.

This is a class for students who build, study, or use digital technology—in short, everyone. No prerequisites required.

Format:

Hybrid lecture/discussion, a combination of asynchronous and synchronous learning (total time = 5 hours/week, 2 of which are synchronous). Outside the virtual classroom, students will watch video and listen to audio, read secondary sources and annotate primary ones, and write and discuss (total time = 10 hours/week).

We will have two hours of synchronous learning time per week: **Wednesdays and Fridays from 11:30-12:30**. Wednesday is a lecture/discussion followed by 30-40 minutes of open office hours where students can choose to stay online to continue discussion with the professor. Friday is a quiz section that will involve further discussion, projects and quizzes, and research workshops. Recognizing that remote learners may have geographic and other life constraints, synchronous sessions will be recorded and attendance is not mandatory. However, participating in the sessions (or watching them later and doing requested make-up work) is strongly encouraged and expected, as is active participation in individual and group work outside of synchronous class time.

Auditors are welcome, but synchronous sessions and online discussions are for registered undergraduate students only.

Content:

- The role of the Cold War military-industrial complex in spurring the growth of the electronics industry and science and technology in higher education;
- Tech's relationship to and influence in national politics and policymaking;
- The reasons high-tech industry grew and clustered in certain places;
- The origins and persistence of systemic racial and gender exclusion in technology industries, spaces, and institutions;
- Tech moguls, corporate culture, and the high-tech workplace;
- Data privacy, cybersecurity, and individual rights in a high-tech world; and
- The American technology industry in global context.

Methodology:

Working with both primary and secondary historical sources, students will gain both content knowledge and sharpen skills of qualitative data analysis, critical thinking, and analytic writing.

Learning goals:

After completing this course, students should be able to:

- Understand the key public- and private-sector catalysts of industrial development in the technology sector;
- Situate technology's history within broader developments in modern American history;

- Critically assess, and contest, common narratives about the technology industry, digital technology, and the people who lead and work in that industry; and
- Demonstrate in-depth knowledge of the historical context of data and digital data production, and understand data as a product of that social context.

Readings:

You are not required to purchase texts for this course. Your only course costs will be renting two streaming films (total cost about \$8), and you are welcome to watch together with class colleagues and share the expense, or the popcorn. All other required readings and audio/video are free and in an **electronic course pack** available to enrolled students and auditors on the course Canvas website by the start of Winter Quarter. Expect to read 75-100 pages per week (or multimedia sources that take approximately the same amount of time to consume). To obtain access to all these sources, please make sure you are signed into your computer with your UWnet ID.

Grading:

I am adopting a new approach to grading with this course, prompted by the constraints and opportunities of the current moment and my desire for you to have an enriching intellectual experience that provides extensive and helpful feedback and opportunities for growth. Here is the plan:

- 1) ***You won't get "final" grades on anything until the end.*** The course has a number of assignments that you will submit during the quarter, including a) two papers on which you will receive brief narrative feedback and an interim grade, and b) at least six short discussion posts that are ungraded, but whose overall depth and quality will contribute to your final course grade.
- 2) ***You choose your schedule.*** The above assignments have suggested due dates. You will not be penalized if you submit them later than the suggested due date, but we will only be able to provide narrative feedback on papers submitted at the time suggested.
- 3) ***Except twice.*** There are two in-term assignments with firm due dates, a) a group video project, and b) a proposal for your final research project.
- 4) ***You'll 'grade' yourself, too.*** You also will write a short, ungraded reflection at the middle of the term on how your work has progressed thus far, what you have learned, and your goals for the second half of the term. We will give you feedback on that reflection that tells you how we think things are going. You will also submit a short, final self-assessment at the end of the quarter.
- 5) ***You can revise.*** If you are dissatisfied with your work on any given assignment, you may revise and resubmit in the final portfolio at the end of the quarter.
- 6) ***Your final portfolio = your grade.*** Your grade for this course, using the UW 4.0 undergraduate system, will be based on a portfolio that consists of all the assignments you completed over the term, plus a final research project. It also will be based on ongoing participation and engagement over the full term. You will have a chance to improve on the interim grades you received on previously submitted assignments (if you revise the papers, you'll either receive the same or

better grade on them), as well as new grades for the final components of the quarter's work.

While this schedule is designed to give you maximum flexibility and discretion over how and where you do your work, as well as free all of us from grade-driven anxiety, keep in mind that the assignments have been designed to be completed over the full quarter. It is up to you to keep up with work on a steady basis so that you are able to complete the full portfolio satisfactorily by the quarter's end. I also hope that you will stay engaged with discussion, chats, and group work throughout the term. If you have any concerns about your work or progress (e.g., "c'mon, prof, what's my grade, really?"), make an online appointment with me so we can chat more about your situation 1-1. Bottom line: I want you to engage with and enjoy this class, leave with lasting, useful knowledge, and make a positive contribution to your academic and preprofessional goals. Let's work together to make that happen.

Assignments:

Percentages indicate the weight each component will carry in grading the final portfolio.

- **DISCUSSION AND REFLECTION – 30% of grade**
 - **Online discussion** (10%) posts on Canvas in response to instructor prompts on reading, media, documents, and research mini-projects. These prompts are listed as POST in the week-by-week schedule below. Posts should be around 250 words each (ok to do more or less, as long as you can get your point across) and you should post at least 6x during the quarter, or 6 of the 10 weeks. You may post more if you wish, but it is not necessary for successful completion of this element.
 - **Class engagement** (20%) come to Wednesday class having read/watched the assignments (listed under WATCH and READ on the week-by-week schedule below) with 1) one "talking point" and 2) one question on hand, ready to share with the class in full and in breakout groups. Come to quiz section on Friday ready to engage in the exercises and assignments designed by the TA as well as prepared to speak to the questions posed in the week's POST assignment. If you are unable to be in class for any reason, you may email any talking points and assigned coursework by the end of the week to the TA for 1-1 feedback and discussion.
 - **Self-assessment** (no %, but required) at the end of Week Five of the term, a short note to the instructor and TA discussing your work in the class thus far, assessing strengths and weaknesses, and outlining goals for the remainder of the quarter.

- **TOPICAL ESSAYS – 30% of grade**
 - **Midterm paper 1** (15%) of 800-1000 words on a topic chosen from several options presented by the instructor (topics will be released at the end of Week Three; suggested due date end of Week Four).

- **Midterm paper 2** (15%) of 800-1000 words on a topic chosen from several options presented by the instructor (topics will be released at the end of Week Seven; suggested due date end of Week Eight).
- **PROJECTS – 35% of grade**
 - **Group video project** (10%) that presents a major theme related to class content, with a popular audience in mind. Due the end of Week Six.
 - **Peer- and self- review of work on video project** (no % but required), completing a form indicating how your fellow group members performed/contributed, and assessing your own contribution.
 - **Research project** (25%) on a topic of your choosing that relates to class content. You also may choose the format:
 - 1) a paper of 1500-1750 words in length;
 - 2) a podcast or audio recording;
 - 3) a web page;
 - 4) a visualization, photodocumentary, or another piece of visual art.
 Whatever its form, it should make an argument based on primary and secondary sources, and should include a written bibliography or running credits. Project proposal (topic and medium), submitted at the end of Week Seven, will count for 5%; the full project, submitted by the end of finals week as part of the final portfolio, counts for 20%.
- **FINAL PORTFOLIO – 5% of grade (due 5PM Friday of exam week)**
 - Please assemble all your assignments (revised if desired) into one clearly organized Word or similarly editable document. Having all your materials in one place makes it much easier for us to review and grade, and ensures we won't miss any of your work. The portfolio has nine elements (only two of them, the cover letter and final research project, are new):
 - 1) A short cover letter to the professor and TA that summarizes your work in the class and tells us how *you* think you did;
 - 2) A document of all of your discussion posts, cut/pasted from Canvas;
 - 3) A document of all your talking points/questions on each class reading, organized by date;
 - 4) Your midterm self-assessment;
 - 5) Midterm paper 1 (revised if desired);
 - 6) Midterm paper 2 (revised if desired);
 - 7) Link to video project and copy of your self/peer assessment of the group work;
 - 8) Research proposal;
 - 9) Final research project, with bibliography.

Weekly schedule (overview):

Week One	Introduction: before the digital age
Week Two	World War II, the Bomb, and American science
Week Three	Loving and fearing “the electronic brain”

Week Four	White spaces, tech places
Week Five	From moonshots to hippies
Week Six	The computer becomes personal
Week Seven	Wargames: AI, the internet, and high-tech defense
Week Eight	The dot-com boom
Week Nine	Global Silicon Valleys
Week Ten	Big Tech and beyond

Each week, **WATCH and READ prior to Wednesday’s class session**. Come to that session with 1) one “talking point” and 2) one question for the professor based on what you have watched and read. I’ll explain in the introductory video (Welcome to HSTAA 317) what that should look like. If you are unable to be in class for any reason, you may email any talking points and assigned coursework by 5pm Friday to the TA for 1-1 feedback and discussion.

Each week’s **POST assignment has a suggested deadline of Friday at the start of your quiz section**. Posts should be around 250 words each (ok to do more or less, as long as you can get your point across) and you should post at least 6x during the quarter. You may post more if you wish, and late posting is ok, although it may be most interesting and lively for you to be posting in the week when others are in conversation on the string as well.

Friday quiz section will consider all components of the week’s content. Come ready to talk about the reading, lectures, and the questions posed in the week’s POST assignment (even if you chose not to write a post that week). The TA will also assign additional discussion exercises, quizzes, etc. during section, and active participation will contribute toward your course participation grade. If you are unable to be in class for any reason, you may email any talking points and assigned coursework by 5PM Friday to the TA for 1-1 feedback and discussion.

Week One: Before the Digital Age

WATCH

- 1) LECTURE: Welcome to HSTAA 317
- 2) LECTURE: Thinking historically about digital tools and data

READ

- 1) Paul David, “[Clio and the Economics of QWERTY](#),” *American Economic Review* 1985
- 2) Mar Hicks, “[Built to Last](#),” *Logic Magazine* No. 11, August 2020

INTRODUCTION

Introduce yourself—via text, video, audio—on our class Introductions page on Canvas.

POST

Explore [The Songs of the IBM](#), a corporate songbook used from the 1920s to the 1970s in IBM company meetings (this edition is from 1937). Write a discussion post (noting particular examples of songs and lyrics) on what this primary source tells you about IBM's corporate culture, organizational structure, and priorities of its executives. What purpose does the songbook seem to serve? What does this tell you about the company and about the early 20th century technology business generally? What might be an analogous practice or feature in one of today's major tech companies?

Week Two: World War II, The Bomb, and American Science

WATCH

- 1) LECTURE: The 'Endless Frontier'
- 2) "[I am Become Death: They Made the Bomb](#)" (1995, 56 minutes)

READ

- 1) Jennifer Light, "[When Computers Were Women](#)," *Technology and Culture* (1999)
- 2) Richard White, "[Hanford: Boomtown of the Atomic Frontier](#)," *High Country News* (1996)
- 3) Vannevar Bush, "[As We May Think](#)," *The Atlantic* (1945)

POST

Read the Summary and Introduction of [Science, The Endless Frontier](#) (1945), the report by Presidential Science Advisor Vannevar Bush to President Franklin D. Roosevelt making the case for ongoing federal investment in science and technology. Browse the other sections of the report you see interesting as well. Write a discussion post (quoting or paraphrasing salient passages of the text) on what this document tells us about American attitudes towards science and its uses and notions of "progress" at the close of World War II. How does this help us understand the role of science and technology in the United States during and after the war? How does it compare and contrast to ideas about science and technology today?

Week Three: Loving and Fearing "The Electronic Brain"

WATCH

- 1) LECTURE: The early computer industry
- 2) "[Remington Rand Presents the Univac](#)" (1952; 17 min)
- 3) LECTURE: The privacy wars

READ

- 1) John Harwood, "[The Architecture of the Computer](#)," from *The Interface: IBM and the Transformation of Corporate Design* (2011)
- 2) Sarah E. Igo, "[The Naked Society: More than a century of invasions into our collective privacy](#)," *Times Literary Supplement* (2018)

- 3) "[The Computer and Invasion of Privacy](#)," July 1966 – read opening statement of Rep. Cornelius Gallagher (pp. 1-4) and testimony of Paul Baran (pp. 119-128)

POST

In 2002, science fiction writer Edwin Black published *IBM and the Holocaust*, a book alleging the company's complicity in Hitler's genocide. Read Black's *Village Voice* essay drawn from his book, "[Final Solutions](#)" (content warning: graphic descriptions of violence). Then read Michael Allen's review of the book, "[Stranger than Science Fiction: Edwin Black, IBM, and the Holocaust](#)," *Technology & Culture* (2002). What was your initial reaction to Black's essay, and did Allen's review change that? What does Allen's critique tell you about historians' sources and methods, and how historians use evidence to build an argument?

Week Four: White Spaces, Tech Places

WATCH

- 1) LECTURE: The military-industrial complex
- 2) LECTURE: Why tech is in the suburbs

READ

- 1) Scott G. Knowles and Stuart W. Leslie, "[Industrial Versailles': Eero Saarinen's Corporate Campuses for GM, IBM, and AT&T](#)," *Isis* 92: 1 (March 2001), pp. 1-33
- 2) R. Arvid Nelsen, "[Race and Computing](#)," *IEEE Annals of the History of Computing* (2017)
- 3) Kim-Mai Cutler, "[East of Palo Alto's Eden: Race and the Formation of Silicon Valley](#)," *TechCrunch* (January 2015)
- 4) Safiya Umoja Noble and Sarah T. Roberts, "[Technological Elites, the Meritocracy, and Postracial Myths in Silicon Valley](#)," in *Racism Postrace*, ed. Roopali Mukherjee, Sarah Banet-Weiser, and Herman Gray (Duke, 2019)

POST

Through online searching, find two primary sources (image/film/text, from a credited and credible source) from the 1950s or early 1960s, one a representation of suburban life, a second a representation of American science and technology. (Some places to start might be the online archives of [LIFE](#) magazine or the many YouTube clips of the 1950s television program [Disneyland](#).) How do these sources reflect and project ideas of race and gender in the places and institutions that nurtured the early technology industry? How do they help us understand and potentially remedy today's underrepresentation of female-identifying and Black and Latino employees in tech, particularly in engineering and managerial roles? In your post, be sure to include the images and a link to where you found them.

MIDTERM ESSAY #1 **SUGGESTED** DUE DATE: FRIDAY 5PM

Week Five: From Moonshots to Hippies

WATCH

- 1) LECTURE: The space race and Silicon Valley
- 2) LECTURE: The Vietnam generation pushes back

~~READ~~ NO READING – MOVIE WEEK!

Choose and watch **one** of the following Hollywood films about the early digital age. All available on multiple streaming services for rent (\$3-4), or at the UW Libraries.

- 1) [Desk Set](#) (1957)
- 2) [Dr. Strangelove](#) (1964)
- 3) [2001: A Space Odyssey](#) (1968)

POST

Post a short commentary on the film you watched this week, its strengths and weaknesses, and how it relates to and builds upon what we have learned thus far in class. Along with this general commentary on the film as a whole, identify your favorite scene, and tell us why it's interesting.

SELF-ASSESSMENT

Shared privately via email to instructor and TA by Friday 5PM, telling us two things:

- 1) How you feel you've done in class thus far, assessing strengths and weaknesses, and outlining your goals for the remainder of the quarter.
- 2) One thing you've learned in this course so far that you have been able to apply in another class, or that's helped you better understand or contextualize what's in the news.

Week Six: The Computer Becomes Personal

WATCH

- 1) [The Mother of all Demos](#), December 1968
- 2) LECTURE: The hobbyists and homebrewers
- 3) LECTURE: The personal computer moves in
- 4) [Steve Jobs introduces the Macintosh](#), January 1984 (watch the first 15 minutes)

READ

- 1) Meredith Broussard, "[People Problems](#)," Chapter 6 of *Artificial Unintelligence: How Computers Misunderstand the World* (2018) – full ebook also available at UW Libraries
- 2) Catherine D'Ignazio and Lauren Klein, "[The Numbers Don't Speak for Themselves](#)," Chapter 6 of *Data Feminism* (2020) – full ebook also available at UW Libraries

POST

Explore the archives of [BYTE Magazine](#) (part of the Computer Magazine Archives hosted by the Internet Archive). Browse through 2-3 issues, choosing one from early

volumes (1975-77), and 1 or 2 from later years. To make this easier, sort the collection by date published, which will place the issues in descending order from most recent to older. Based on your browsing of both articles and advertising, write a discussion post answering the following questions, providing evidence and examples. Please note the volume/issue numbers referenced and feel free to add screenshots or visuals.

1. How does the look and tone of earlier issues contrast with later ones? What can this tell us about the evolution of the personal computer industry?
2. Who seems to be the target audience and market? Does this change over time?
3. What is one ad or article that you would like to highlight for everyone?

GROUP VIDEO PROJECT **DUE** FRIDAY 5PM. (EACH GROUP MEMBER SHOULD POST BOTH A LINK TO VIDEO AND YOUR SELF/PEER ASSESSMENT FORM ON CANVAS.)

Week Seven: Wargames

WATCH

- 1) LECTURE: The Pentagon, AI, and the internet
- 2) LECTURE: Star Wars and Cold War
- 3) [WarGames](#) (1983)—available on Netflix, Amazon Prime, and for rent on YouTube, iTunes, and other services (\$3-4)

LISTEN

- 1) Fred Turner and Charlton McIlwain, “[The Origins of the Internet](#)” (2020, 60 min)

READ

- 1) Stephanie Ricker Schulte, “[The WarGames Scenario](#),” in *Cached: Decoding the Internet in Popular Culture* (2013)

POST

Watch [Ronald Reagan’s address announcing the Strategic Defense Initiative](#), March 1983 (29 min). What case is he making to his audience? How does his rhetoric compare and contrast with earlier sources we’ve examined from earlier in the Cold War? Reagan was known as “The Great Communicator.” How does this speech support that characterization?

RESEARCH PROJECT PROPOSAL **DUE** FRIDAY 5PM

Week Eight: the dot-com boom

WATCH

- 1) [Bill Clinton and Al Gore at Silicon Graphics](#), 1993 (start around min 11:00, go until around 23:00)

- 2) LECTURE: Suits in the Valley
- 3) [“Yahoo! Jerry and Dave’s Excellent Venture”](#) (1997, 32 min)
- 4) [Jeff Bezos on 60 Minutes](#) (1997, 13 min)

READ

- 1) Mitchell Kapor, [“Where is the Digital Highway Really Heading?”](#) *Wired* (1993)
- 2) John Heilemann, [“The Making of the President 2000,”](#) *Wired* (1995)
- 3) John Perry Barlow, [“A Declaration of the Independence of Cyberspace”](#) (1996)

POST

The internet now features an abundance of goofy 90s-era videos about “the World Wide Web” and life online. Find one of them and contextualize and historicize it as a primary source (post or embed the link to the video itself). What does it reveal about how different institutions and media outlets understood technology and portrayed the commercial internet to a wider audience? Who are they speaking to? What do they get right, and what do they get wrong? How does this help explain popular perceptions of the online world in the 1990s and beyond?

MIDTERM ESSAY #2 **SUGGESTED** DUE DATE FRIDAY 5PM

Week Nine: Global Silicon Valleys

WATCH

- 1) LECTURE: Immigration and American tech
- 2) LECTURE: Globalization of American tech

READ

- 1) Eden Medina, [“Big Blue in the Bottomless Pit: the early years of IBM Chile,”](#) *IEEE Annals of Computing* (2008)
- 2) Margaret O’Mara, [“Silicon Dreams,”](#) in *Making Cities Global*, ed. A.S. Sandoval-Strausz and Nancy Kwak (2019)
- 3) Neal Stephenson, [“Mother Earth Mother Board,”](#) *Wired* (1996)

POST

Search out a city or region, anywhere in the world, that at one time or another called itself “Silicon _____.” Find out what you can about this place and its high-tech ambitions, and whether they were realized. Write a microhistory with relevant links that introduces your class colleagues to this Silicon Something.

Week Ten: Big Tech and beyond

WATCH

- 1) LECTURE: The rise of social networking
- 2) LECTURE: The supercomputer in your pocket

3) LECTURE: Software eats the world

LISTEN

- 1) [The Ghostworkers Behind the Tech Industry, featuring Mary Gray](#), *Innovation for All Podcast* (2020)

READ

- 1) Marc Andreessen, "[Why Software is Eating the World](#)," *The Wall Street Journal* (2011)
- 2) Ingrid Burrington, "[Why Amazon's Data Centers are Hidden in Spy Country](#)," *The Atlantic* (2016)
- 3) Charles Duhigg and Keith Bradsher, "[How the US Lost Out on iPhone Work](#)," *The New York Times* (2012)

POST

Read Doreen St. Felix, "[Black Teens are Breaking the Internet and Seeing None of the Profits](#)," *Fader* (2015). Six years later, creators on TikTok and other online networks are similarly setting trends and not necessarily profiting. Contextualize who is "influencing" and making money online in 2021 within what you have learned this quarter about the animating ideas and political economy of the early internet, and the political and economic context of its commercialization since the 1990s. How does this history help us better understand today's balance of online power and profit? What might it tell us about how to change the digital world for the better?

FINAL PORTFOLIO, INCLUDING FINAL PROJECT, **DUE** FRIDAY 5PM OF EXAM WEEK (WEEK ELEVEN)