

IDS 2935: Finding Your Voice In the Era of AI

Quest 1: Identities

I. General Information

Class Meetings

- Fall 2023
- Hybrid, 33% synchronous & 67% asynchronous; 6 Break-out Sections (3 residential, 3 UFO). Students are required to attend synchronous break-out sections, whether residential or UFO. Zoom links for UFO break-out sections will be distributed on Canvas once sections have been assigned.

Instructor

- Name: Dr. Tina Tallon (she/hers)
- Office Location: MUB 306
- Office Hours: T/Th, Period 7 (1:55-2:45pm) and by appointment
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Teaching Assistant(s)

- TBD

Course Description

The voice is often referred to as the first instrument, and arguably, it is the instrument with which we are all most familiar. From the very moment we are born, we are all quite adept at using our voices to get what we want through a variety of vocalizations that become increasingly sophisticated and complex over time, ultimately shaping who we are and how we engage with the world around us. However, despite this extreme familiarity and technical facility, the voice is also the instrument that most defies attempts at classification and theory – and especially, technological reproduction and mediation. Artificial intelligence is drastically changing the landscape of voice technology, and with it, our relationship to ourselves and those around us. In addition to its seemingly limitless expressive capabilities, the voice is one of the most important sites for the construction and communication of identity, both individually and societally. Together, we will explore questions of embodiment, agency, and power through the context of the voice and its intersections with many aspects of our varied identities, including (but not limited to) race, ethnicity, gender, class, religion, age, sexual orientation, and (dis)ability, with an eye toward deepening our understanding of how our voices influence our own and other people's understandings of themselves in an increasingly diverse and technologically-mediated global society.

This course is highly interdisciplinary in nature; readings, viewings, and listenings are drawn from a variety of sources including scientific journals, magazines and newspapers, works of art, and social media platforms like TikTok, in fields ranging from neuroscience, linguistics, and computer science to the performing arts, popular culture, and political science. Topics covered will include sonic cognition, linguistics, voice recording, transmission, and synthesis technologies, artificial intelligence and machine learning, disability, the media, and democracy and representation. Through hands-on creative and technical projects (such as creating AI-generated art, training a neural network using one's own voice, and producing a podcast episode), writing both an analytical paper and short self-reflection statements, and in-class discussions, we will explore what it means to have, to use, to generate, and to manipulate a voice in modern society – and what the future may hold for our voices.

Quest and General Education Credit

- Quest 1
- Humanities (H) - Humanities courses provide instruction in the history, key themes, principles, terminology, and theory or methodologies used within a humanities discipline or the humanities in general. Students will learn to identify and to analyze the key elements, biases and influences that shape thought. These courses emphasize clear and effective analysis and approach issues and problems from multiple perspectives.
- Diversity (D) – This designation is always in conjunction with another program area. If a Diversity designation is being requested the syllabus must demonstrate that a majority of the course addresses Diversity content and engagement; it should be a substantial, defining feature of the course. In Diversity courses, students examine the historical processes and contemporary experiences characterizing social and cultural differences within the United States. Students engage with diversity as a dynamic concept related to human differences and their intersections, such as (but not limited to) race, gender identity, class, ethnicity, religion, age, sexual orientation, and (dis)abilities. Students critically analyze and evaluate how social inequities are constructed and affect the opportunities and constraints across the US population. Students analyze and reflect on the ways in which cultures and beliefs mediate their own and other people's understandings of themselves and an increasingly diverse U.S. society.
- Writing Requirement (WR) 2000 words

This course accomplishes the [Quest](#) and [General Education](#) objectives of the subject areas listed above. A minimum grade of C is required for Quest and General Education credit. Courses intended to satisfy Quest and General Education requirements cannot be taken S-U.

Required Readings and Works

All readings and referenced works will be available on the course's Canvas page, with each week having its own page listed on the "Pages" tab.

Recommended Writing Manuals:

Purdue Owl, https://owl.purdue.edu/owl/research_and_citation/resources.html

UF Writing Studio, <http://www.writing.ufl.edu>

II. Graded Work

Description of Graded Work

Coursework will consist of a mix of many short assignments assigned on a near-weekly basis and two large projects: a 2000-word analytical essay and a podcast episode of at least 15 minutes (there is no final exam). Additionally, all students are expected to participate in the class either synchronously during breakout sessions or asynchronously using the message board on Canvas.

ASSIGNMENT BREAKDOWN AND SCHEDULE

SELAs (x6) – 5% of the grade each for a total of 30%

Short Experiential Learning Assignments (SELAs) are assignments with both a short hands-on practical learning component and a short (100-200 words) explanatory writing component explaining how students created their submission. In the context of this course, SELAs may result in the production of short pieces of audio, text, or code which demonstrate understanding of concepts and proficiency with a specific tool or technique introduced and discussed in the course. Task-specific directions (including expected deliverables) will be given with each assignment.

SELA 1: Write a Personal Statement of AI Utility – due 9/5

SELA 2: Markov Chain Poetry – due 9/19

SELA 3: The DAW(n) of Recording: An Intro to Digital Audio Workstations (DAWs) – due 10/3

SELA 4: MNIST Digit Recognition – due 11/2

SELA 5: Training a Neural Net with Your Own Voice – due 11/7

SELA 6: Create a work of Art Using Your Own Voice – due 12/5

SSRs (x6) – 2% of the grade each for a total of 12%

Short Self-Reflections (SSRs) are short (100-200 words) personal, informal writing exercises that allow students to position themselves with respect to the material covered in class and reflect on how it is useful, relevant, and/or pertinent to their every-day lives. Task-specific prompts will be given with each assignment.

SSR 1: on experimentation with The Pink Trombone app – due 8/29

SSR 2: IPA transcription – due 9/12

SSR 3: on virtual digital assistants – due 10/10

SSR 4: on auditing a voice dataset used in AI research – due 10/24

SSR 5: identifying misinformation and media bias – due 11/14

SSR 6: review of your Statement of AI Utility – due 12/5

Paper (x2) – 15% of the grade each for a total of 30% (counts toward WR 2000 Designation)

Each analytical paper is a longer (1000-word) thesis-driven essay (rubric provided in the syllabus). (see writing rubric for more information).

Paper 1: on the way that a specific piece of voice technology has impacted society – due 10/12

Paper 2: on the impacts of artificial intelligence on ways that we understand ourselves and those around us – due 11/9

Podcast (x1) – 20%

The final podcast must be at least 15 minutes in length. It must include at least one interview with a peer, and at least one with someone with either intermediate or expert knowledge and experience with

the specific topic being addressed in the podcast (this may be a general topic such as artificial intelligence writ-large, or a very specific topic such as the use of autotune in a specific artist's oeuvre). No more than 3 minutes of the podcast should be comprised of audio samples of other peoples' creative work, with no more than 5 minutes total comprised of artistic components (meaning at least 10 minutes must be monologue or dialogue). – due 12/16

Class discussions – 8%

Class discussions will take place synchronously either in-person or on Zoom. Students who are not able to attend synchronous discussions will have the option of engaging via the online message board on Zoom; in order to receive full credit, they must write at least two thoughtful comments on posted materials per class meeting missed. Attendance will be taken during synchronous sessions, and students are allowed up to three unexcused absences (without participating in the discussion board) without a negative impact on their grade.

Grading Scale

For information on how UF assigns grade points, visit: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

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

Grading Rubric(s)

Writing Assessment Rubric and Statements

	SATISFACTORY (Y)	UNSATISFACTORY (N)
CONTENT	Papers exhibit at least some evidence of ideas that respond to the topic with complexity, critically evaluating and synthesizing sources, and provide at least an adequate discussion with basic understanding of sources.	Papers either include a central idea(s) that is unclear or off-topic or provide only minimal or inadequate discussion of ideas. Papers may also lack sufficient or appropriate sources.
ORGANIZATION AND COHERENCE	Documents and paragraphs exhibit at least some identifiable structure for topics, including a clear thesis statement but may require readers to work to follow progression of ideas.	Documents and paragraphs lack clearly identifiable organization, may lack any coherent sense of logic in associating and organizing ideas, and may also lack transitions and coherence to guide the reader.

ARGUMENT AND SUPPORT	Documents use persuasive and confident presentation of ideas, strongly supported with evidence. At the weak end of the Satisfactory range, documents may provide only generalized discussion of ideas or may provide adequate discussion but rely on weak support for arguments.	Documents make only weak generalizations, providing little or no support, as in summaries or narratives that fail to provide critical analysis.
STYLE	Documents use a writing style with word choice appropriate to the context, genre, and discipline. Sentences should display complexity and logical sentence structure. At a minimum, documents will display a less precise use of vocabulary and an uneven use of sentence structure or a writing style that occasionally veers away from word choice or tone appropriate to the context, genre, and discipline.	Documents rely on word usage that is inappropriate for the context, genre, or discipline. Sentences may be overly long or short with awkward construction. Documents may also use words incorrectly.
MECHANICS	Papers will feature correct or error-free presentation of ideas. At the weak end of the Satisfactory range, papers may contain some spelling, punctuation, or grammatical errors that remain unobtrusive so they do not muddy the paper's argument or points.	Papers contain so many mechanical or grammatical errors that they impede the reader's understanding or severely undermine the writer's credibility.

- The Writing Requirement (WR) ensures students both maintain their fluency in writing and use writing as a tool to facilitate learning.
- The instructor will evaluate and provide feedback before the end of the course on all of the student's written assignments with respect to grammar, punctuation, clarity, coherence, and organization.
- WR course grades have two components. To receive writing requirement credit, a student must receive a grade of C or higher and a satisfactory completion of the writing component of the course.

SELA (Short Experiential Learning Assignment) Rubric and Statements

	SATISFACTORY (Y)	UNSATISFACTORY (N)
CREATIVE COMPONENT	Students have engaged with the technology as instructed in class and successfully produced an instance of the prompted creative output (whether this is poetry, an audio file, a piece of code, etc.; this is context-dependent, as each assignment is different). The output that they produce demonstrates understanding of concepts and proficiency with a specific tool or technique.	Students did not produce the requested creative component, or did not produce it through the means prescribed (again, this is context-dependent, as each assignment is different). If there is any output, it does not demonstrate understanding of concepts and proficiency with a specific tool or technique.
WRITTEN COMPONENT	Written reflections are well-structured, have minimal grammatical errors, are at least 100 words in length, and exhibit at least some evidence of ideas that respond to the topic addressed by the assignment, as well as the creative output with complexity. This includes critically evaluating and synthesizing sources, providing at least an adequate discussion of	If present, written reflections are less than 100 words, rife with grammatical errors, lack coherence, and either include a central idea(s) that is unclear or off-topic, or provide only minimal or inadequate discussion of ideas. The written reflection also fails to relate to the creative component, and shows little evidence of critical engagement with the tools,

	the tools, techniques, and technologies involved in producing the creative output and the student's positionality to them.	techniques, and technologies used to create the requested output. The student shows a lack of understanding of the their relationship to those tools.
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Podcast Assessment Rubric and Statements

	SATISFACTORY (Y)	UNSATISFACTORY (N)
CONTENT	Discussion is engaging, informative, insightful, and encourages the audience to explore the content further. External resources were varied, thoughtful, and enhanced the discussion of the primary content. Includes at least one interview with a peer, and at least one with someone with either intermediate or expert knowledge and experience with the specific topic being addressed. The podcast is 15 minutes long, with no more than 3 minutes of the podcast should be comprised of audio samples of other peoples' creative work, with no more than 5 minutes total comprised of artistic components (meaning at least 10 minutes must be monologue or dialogue).	Discussion is inappropriate to the topic and minimally engages the listener. No external resources (audio excerpts, quotes, facts) are included, and does not include both an interview with a peer and subject-area specialist. The podcast is shorter than 15 minutes, and does not include at least 10 minutes of monologue or dialogue.
ORGANIZATION AND COHERENCE	The structure and topic discussion sequence is effective, interesting, and engaging, with a clear focus. The introduction establishes a purpose that engages the listener immediately, and the conclusion clearly summarizes key information, while entreating the listener to further engage with the topic.	The structure is unclear and the listener cannot follow along. The primary purpose is not established from the beginning, and external resources and references are not properly introduced or identified. The conclusion does not sufficiently summarize key information, and listeners are not inspired to further engage with the topic.
DELIVERY AND PRODUCTION	The podcast is well-rehearsed, with a smooth delivery in a conversational style, and the presenter's speech is clear and intelligible. The podcast is recorded in a quiet environment with minimal background noise and distractions, and the volume of voice, music, and effects enhance the presentation.	Delivery is hesitant and choppy, and/or sounds like the presenter is simply reading as opposed to having a conversation. Enunciation is distant, muddled and not clear. The podcast is recorded in a noisy environment with constant background noise and distractions, and volume changes between different elements are highly distracting.

Participation Rubric and Statements

	SATISFACTORY (Y)	UNSATISFACTORY (N)
PRESENCE	Students are present for and engaged in all break-out meetings, making specific and detailed observations about course materials OR contribute to discussions on the Canvas discussion board (outlined below) for any missed break-out sessions	Students are not present for all break-out session meetings and do not contribute to asynchronous discussions, or do not engage with break-out session meetings.
CONTRIBUTIONS	Students who are present should either respond to a question posed by the instructor/TA or to a response by one of their colleagues once per session in a coherent and respectful manner that demonstrates a detailed and thoughtful engagement with the course materials. If absent from break-out session discussion, students should provide thoughtful, detailed commentary (at least 50 words demonstrating a close reading/analysis of assigned references or related personal experiences) on a Discussion board topic at least twice that week.	Contributions to discussions (either in-person or on the Discussion board) make weak generalizations and do not demonstrate detailed engagement with course materials, or create a toxic environment for other members of the class.

III. Annotated Weekly Schedule

Week	Topics, Homework, and Assignments	Due Date
Week 1 8/24	<p>Topic: A Brief Introduction to Sound, the Voice, and Design Justice</p> <p>Summary: Students will learn the fundamentals of how humans perceive and create sounds using their voices by exploring fundamental acoustics, basic sonic cognition, anatomy of the human vocal tract, formants, and modes of sound production. We will also discuss philosophical aspects of the physics of the voice and its relationship to the body (including gender, race, and intersectional identities), and principles of designing just technological interventions, particularly with respect to AI.</p> <p>Required Readings/Works:</p> <ul style="list-style-type: none"> • The Voice Foundation. <i>The Voice Reference Guide: Anatomy and Physiology of Voice Production</i>. https://voicefoundation.org/health-science/voice-disorders/anatomy-physiology-of-voice-production/ • Eidsheim, N. S., & Meizel, K. (2019). Introduction: Voice Studies Now. In N. Eidsheim & K. Meizel (Eds.), <i>The Oxford Handbook of Voice Studies</i> (pp. xiii-xli). Oxford University Press. • Lopez Lloreda, Claudia. (2020, 5 July) "Speech Recognition Tech Is Yet Another Example of Bias." <i>Scientific American</i>. Accessed 21 August 2023. https://www.scientificamerican.com/article/speech-recognition-tech-is-yet-another-example-of-bias/ • Inclusive Design Research Center (n.d.). <i>Philosophy</i>. Accessed 22 August 2023. https://idrc.ocadu.ca/about/philosophy/ <p>Assignment: SSR 1 on experimentation with The Pink Trombone app (https://dood.al/pinktrombone/)</p>	8/29
Week 2 8/28; 8/30	<p>Topic: Nonlexical Vocalizations and the Foundations of Speech Perception</p> <p>Summary: Students will learn the foundations and contexts of human vocalization and how they function throughout our lives. Additionally, we will analyze how various aspects of human vocalization come to be recognized as speech, and how gender, race, age, class, and other aspects of our experiences may influence how different vocalizations may be perceived.</p> <p>Required Readings/Works:</p> <ul style="list-style-type: none"> • Cowen, Alan S., Hillary Anger Elfenbein, Petri Laukka, and Dacher Keltner (2019). Mapping 24 emotions conveyed by brief human vocalization. <i>American Psychologist</i>, 74 (6), 698-712. • Deutsch, Diana et. al. (2011). Illusory transformation from speech to song. <i>Journal of the Acoustical Society of America</i>, 129, 2245-2252. • Heid, M. (2017, November 2). What Is Vocal Fry and Creaky Voice? <i>Time Magazine</i>. https://time.com/5006345/what-is-vocal-fry/ • Katz, J., Corum, J., & Huang, J. (2018, May 16). We Made a Tool So You Can Hear Both Yanny and Laurel. <i>New York Times</i>. https://www.nytimes.com/interactive/2018/05/16/upshot/audio-clip-yanny-laurel-debate.html • Mashable Deals (2018, May 9). Google's AI Assistant Can Now Make Real Phone Calls [Video]. <i>YouTube</i>. https://www.youtube.com/watch?v=JvbHu_bVa_gLinks_to_an_external_site. <p>Assignment: SELA 1: Write a Personal Statement of AI Utility</p>	9/5
Week 3 9/5; 9/7	<p>Topic: Linguistics, Phonology & Phonetics, and Symbolic Representations of the Voice</p> <p>Summary: Students will learn the basics of the way that language intersects with the voice, including phonology, morphology, and prosody. We will explore the way that language and the voice contribute to cultural touchstones such as accents, dialects, and vernaculars, and how these variations are represented symbolically using the International Phonetic Alphabet (IPA). We will consider how navigating intersections of gender, race, ethnicity and class in different cultural contexts and spaces leads to the use of code-switching.</p> <p>Required Readings/Works:</p>	9/12

Week	Topics, Homework, and Assignments	Due Date
	<ul style="list-style-type: none"> • Ward, Alie (Host). (2018, June 4) Phonology (LINGUISTICS) With Nicole Holliday (No. 36). [Audio podcast episode] in <i>Ologies</i>. https://www.alieward.com/ologies/phonology (Duration: 1:03:14; transcript available here) • Australian Associated Press (2017, August 8). Computer says no: Irish vet fails oral English test needed to stay in Australia. <i>The Guardian</i>. https://www.theguardian.com/australia-news/2017/aug/08/computer-says-no-irish-vet-fails-oral-english-test-needed-to-stay-in-australia • Katz, Josh and Wilson Andrews. (2013, December 21). How Y'all, Youse and You Guys Talk. <i>The New York Times</i>. https://www.nytimes.com/interactive/2014/upshot/dialect-quiz-map.html • For reference: International Phonetic Association (1999). <i>Handbook of the International Phonetic Association: A Guide to the Use of the International Phonetic Alphabet</i>. Cambridge: Cambridge University Press. (1 hour of engagement expected) <p>Assignment: SSR 2 on IPA transcription exercise</p>	
<p>Week 4 9/12; 9/14</p>	<p>Topic: Speech Segmentation, Natural Language Processing, and Large Language Models Summary: We will learn strategies for speech segmentation and parsing utterances, including how to segment words into phonemes, dyads, and syllables. We will analyze source texts using statistical models, and generate our own poetry (or song lyrics, short stories, etc.) using Markov chains, and discuss how natural language processing (NLP) forms the basis for many AI technologies.</p> <p>Required Readings/Works:</p> <ul style="list-style-type: none"> • Brooks, Ruth. (2021, October 12). The role of natural language processing in AI. <i>University of York Online</i>. https://online.york.ac.uk/the-role-of-natural-language-processing-in-ai/. • Emily M. Bender, Timnit Gebru, Angelina McMillan-Major, and Margaret Mitchell. (2021). On the Dangers of Stochastic Parrots: Can Language Models Be Too Big? 🦜 In <i>Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency (FAcT '21)</i>. Association for Computing Machinery, New York, NY, USA, 610-623. https://dl.acm.org/doi/pdf/10.1145/3442188.3445922. • O'Brien, M. (2023, July 12). Sarah Silverman and novelists sue ChatGPT-maker OpenAI for ingesting their books. <i>Associated Press</i>. https://apnews.com/article/sarah-silverman-suing-chatgpt-openai-ai-8927025139a8151e26053249d1aeeec20. • Lehe, Lewis and Victor Powell. (2014). Markov Chains, A visual explanation by Victor Powell. <i>Setosa.io Blog</i>. https://setosa.io/blog/2014/07/26/markov-chains/. <p>Assignment: 9/12: SELA 2: Markov Chain Poetry</p>	<p>9/19</p>
<p>Week 5 9/19; 9/21</p>	<p>Topic: History of Voice Technology I: Amplification, Mechanical Speech Synthesis, and Early Recording Technology Summary: Students will discuss voice technology from the ancient era to the early modern era, taking into account cultural contexts for the use of various types of voice technologies including amplification, mechanical speech synthesis, and early recording technology. We will begin contextualizing these advances with respect to the power structures that influenced the design decisions that inventors, engineers, and artists may have made, whether economic, cultural, political, or a combination thereof.</p> <p>Required Readings/Works:</p> <ul style="list-style-type: none"> • Kontomichos, F. et. al. (2014). The sound effect of ancient Greek theatrical masks. <i>Proceedings of the ICMC</i>. 1444-1452. • Vovolis, T., & Zamboulakis, G. (2007). The Acoustical Mask of Greek Tragedy. <i>Didaskalia</i>, 7(1). https://www.didaskalia.net/issues/vol7no1/vovolis_zamboulakis.html • Ramsay, G. J. (2019). Mechanical Speech Synthesis in Early Talking Automata. <i>Acoustics Today</i>, 15(2). https://acousticstoday.org/wp-content/uploads/2019/06/Mechanical-Speech-Synthesis-in-Early-Talking-Automata-Gordon-J.-Ramsay.pdf • Lemmetty, Sammi (1999). Chapter 2: History and Development of Speech Synthesis in <i>Review of Speech Synthesis Technology</i>. http://research.spa.aalto.fi/publications/theses/lemmetty_mst/chap2.html 	<p>10/12</p>

Week	Topics, Homework, and Assignments	Due Date
	<ul style="list-style-type: none"> Giovannoni, D (2008). <i>Édouard-Léon Scott de Martinville</i>. FirstSounds.Org. https://www.firstsounds.org/research/scott.php <p>Assignment: Analytical Essay 1 Assigned</p>	
<p>Week 6 9/26; 9/28</p>	<p>Topic: History of Voice Technology II: Telephones, Microphones, Radio, and Voice Transmission Summary: Students will examine primary source materials from researchers at Bell Labs as they developed technologies for recording and transmitting the voice, including telephones, microphones, radio, and speech synthesizers. They will also consider the role of this research in shaping policy (namely, the Radio Act of 1927), and what biases may have been present. Additionally, students will gain proficiency with recording and audio manipulation techniques using digital audio workstations (DAWs).</p> <p>Required Readings/Works:</p> <ul style="list-style-type: none"> Lyden, Christopher. (2015, July 31). Billie Holiday and the History of the Microphone. <i>Medium</i>. https://medium.com/o-s/billie-holiday-and-the-history-of-the-microphone-19cc242414a0 Smith, Stephen. (2014, Nov 10). Radio: The Internet of the 1930s. <i>American Public Media</i>. https://www.apmreports.org/episode/2014/11/10/radio-the-internet-of-the-1930s Mix, J. I. (1924). For And Against the Woman Radio Speaker. <i>Radio Broadcast</i>, 391–397. Randle, Jr., W. (1977). Black Entertainers on Radio, 1920-1930. <i>The Black Perspective In Music</i>, 5(1), 67–74. https://www.jstor.org/stable/1214359 Steinberg, J. C. (1927). Understanding Women. <i>Bell Laboratories Record</i>, 3(5), 153–154. Terrascope Radio. <i>A Brief Introduction to REAPER</i>. MIT. https://web.mit.edu/terrascope-radio/REAPER-practice/ABriefIntroductionToReaper-v3.pdf TEDx Talks. (2017, July 17). <i>Unnatural selection: Survival in the digital age Sile O'Modhrain TEDxLondonBusinessSchool</i>. https://www.youtube.com/watch?app=desktop&v=ZrjHURQiffA <p>Assignment: SELA 3: The DAWn of Recording: An Introduction to Digital Audio Workstations (DAWs)</p>	10/3
<p>Week 7 10/3; 10/5</p>	<p>Topic: History of Voice Technology III: Electronic Speech Synthesis and Vocal Prosthesis Summary: Students will examine modern applications of voice technology with an eye towards automation and developments in artificial intelligence. We will consider ways in which voice technology can increase access to various media and the ways it intersects with disability studies by providing communication tools for those with difficulty speaking.</p> <p>Required Readings/Works:</p> <ul style="list-style-type: none"> Ellcessor, E. (2016). You Already Know How to Use It: Technology, Disability, and Participation. In <i>Restricted Access: Media, Disability, and the Politics of Participation</i> (pp. 61–88). NYU Press. http://www.jstor.org/stable/j.ctt18040rg.6 (1 hour) Kewley-Port, D., & Nearey, T. M. (2020). Speech synthesizer produced voices for disabled, including Stephen Hawking. <i>The Journal of the Acoustical Society of America</i>, 148(1), R1. https://doi.org/10.1121/10.0001490 (10 mins) Cattiau, J. (2021, November 9). <i>A communication tool for people with non-standard speech</i>. Google Blog. https://blog.google/outreach-initiatives/accessibility/project-relate/ (10 mins) <p>Assignment: 10/3: SSR 3: virtual digital assistants 10/5: Second Analytical Paper Assigned</p>	10/10 11/9
<p>Week 8 10/10; 10/12</p>	<p>Topic: Artificial Intelligence and the Voice I: History and Fundamentals Summary: Students will learn the history and basic terminology/methodologies related to artificial intelligence and the voice, including applications of natural language processing, machine learning, large language models, neural networks, deep learning, and learning paradigms. Students will also consider the context of how artificial intelligence came to take the shape it has today, examining ancient and pre-modern sources concerning automation and human intelligence.</p> <p>Required Readings/Works:</p>	10/24

Week	Topics, Homework, and Assignments	Due Date
	<ul style="list-style-type: none"> • Gladstone, Brooke (host). (2023, January 13). How Neural Networks Revolutionized AI. <i>On The Media</i>. On WNYC Studios. https://www.wnycstudios.org/podcasts/otm/segments/how-neural-networks-revolutionized-ai-on-the-media • Metz, Cade. (2023, May 1). ‘The Godfather of A.I.’ Leaves Google and Warns of Danger Ahead. <i>New York Times</i>. https://www.nytimes.com/2023/05/01/technology/ai-google-chatbot-engineer-quits-hinton.html • Palma, Mariojose (2021, December 28). A Brief History of Artificial Intelligence. <i>Medium</i>. https://medium.com/geekculture/a-brief-history-of-artificial-intelligence-2cb8d50eedab • al-Jazari, Ibn al-Razzaz (1206). <i>The Book of Knowledge of Ingenious Mechanical Devices</i> (D. Hill, Trans), 46-51. • Ather, S. Hussain (2022). <i>A History of Artificial Intelligence</i>. https://ahistoryofai.com/ • Hernandez-Orallo, J. (2000). Beyond the Turing Test. <i>Journal of Logic, Language, and Information</i>, 9(4), 447–466. http://www.jstor.org/stable/40180237 <p>Assignment: SELA 4: Training a neural net for MNIST Digit Recognition</p>	
<p>Week 9 10/17; 10/19</p>	<p>Topic: Artificial Intelligence and the Voice II: Follow the Data Summary: Students will learn how AI has changed the face of voice technology, particularly related to automatic speech recognition, voice-user interfaces, speech synthesis, and interactive virtual digital assistants. We will grapple with ethical concerns related to dataset construction and whether or not the voice should be an asset that can be bought and sold. Students will also begin to critically consider best practices in the construction of datasets, both technically and ethically. Lastly, we will learn about patent law and technical IP.</p> <p>Required Readings/Works:</p> <ul style="list-style-type: none"> • Ravitz, J. (2013, October 15). “I’m the original voice of Siri.” <i>CNN Business</i>. https://www.cnn.com/2013/10/04/tech/mobile/bennett-siri-iphone-voice • Sweeney, M. E. (2021). Digital Assistants. In N. B. Thylstrup, D. Agostinho, A. Ring, C. D’Ignazio, & K. Veel (Eds.), <i>Uncertain Archives: Critical Keywords for Big Data</i> (pp. 151–160). <i>The MIT Press</i>. https://doi.org/10.7551/mitpress/12236.003.0016 • Piersol. (2015). <i>Pre-wakeword speech processing</i>. (U.S. Patent No. US10192546B1). U.S. Patent and Trademark Office. https://patents.google.com/patent/US10192546B1/en • Dellinger, A. (2019, May 23). Amazon considered letting Alexa listen to you without a wake word. <i>Engadget</i>. https://www.engadget.com/2019-05-23-amazon-alexa-recording-before-wake-word-patent.html • <i>GenderLess Voice</i>. (n.d.). GenderLess Voice. https://www.genderlessvoice.com/ • <i>The Race Gap in Speech Recognition</i>. (n.d.). Stanford Computational Policy Lab. https://fairspeech.stanford.edu • Gonfalonieri, A. (2019, February 13). How to Build A Data Set For Your Machine Learning Project. <i>Towards Data Science</i>. https://towardsdatascience.com/how-to-build-a-data-set-for-your-machine-learning-project-5b3b871881ac <p>Assignment: SSR 4: AI voice dataset audit</p>	<p>11/2</p>
<p>Week 10 10/24; 10/26</p>	<p>Topic: Artificial Intelligence and the Voice III: Text-based generation tools Summary: Students will gain an in-depth understanding of the process of creating an AI model by experimenting with the latest advances in text-to-speech and text-to-sound AI models, including by training a neural network on their own voice. They will learn about different architectures used in making AI voice clone models, and consider the ways in which text-to-speech models may disrupt cultural production and lead to exploitation (and additionally, how artists are fighting back). We will also discuss (current) US copyright law, and how it is being challenged by recent advances in AI.</p> <p>Required Readings/Works:</p> <ul style="list-style-type: none"> • Weitzman, C. (2022, September 27). <i>What Is An Autoregressive Voice Model?</i> Speechify. https://speechify.com/blog/autoregressive-voice-model/ 	<p>11/7</p>

Week	Topics, Homework, and Assignments	Due Date
	<ul style="list-style-type: none"> • Sato, M. (2023, April 24). Grimes says anyone can use her voice for AI-generated songs. <i>The Verge</i>. https://www.theverge.com/2023/4/24/23695746/grimes-ai-music-profit-sharing-copyright-ip • Oord, A., Li, Y., & Babuschkin, I. (2017, November 22). <i>High-fidelity speech synthesis with WaveNet</i>. Google DeepMind Blog. https://www.deepmind.com/blog/high-fidelity-speech-synthesis-with-wavenet • David, E. (2023, September 21). Musicians are eyeing a legal shortcut to fight AI voice clones. <i>The Verge</i>. https://www.theverge.com/2023/9/21/23836337/music-generative-ai-voice-likeness-regulation • Bedingfield, W. (2023, August 31). The Inventor Behind a Rush of AI Copyright Suits Is Trying to Show His Bot Is Sentient. <i>Wired</i>. https://www.wired.com/story/the-inventor-behind-a-rush-of-ai-copyright-suits-is-trying-to-show-his-bot-is-sentient/ <p>Assignment: SELA 5: Training a Neural Net with Your Own Voice</p>	
<p>Week 11 10/30; 11/2</p>	<p>Topic: Artificial Intelligence and the Voice IV: Ethics, Accountability, and Sustainability Summary: Students will analyze the impact of current AI technologies on the relationship between voice and identity, carefully considering the means by which deepfakes are constructed and ways in which algorithmic harm can be counteracted before it is caused. We will also discuss the environmental impact of AI and digital colonialism. Who should hold the responsibility of holding those developing algorithmic tools accountable? Required Readings/Works:</p> <ul style="list-style-type: none"> • The White House (2023, October 30). "FACT SHEET: President Biden Issues Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence." <i>The White House</i>. https://www.whitehouse.gov/briefing-room/statements-releases/2023/10/30/fact-sheet-president-biden-issues-executive-order-on-safe-secure-and-trustworthy-artificial-intelligence/ • Coldewey, Devin (2021, December 2). After being pushed out of Google, Timnit Gebru forms her own AI research institute: DAIR. <i>TechCrunch</i>. https://techcrunch.com/2021/12/02/google-timnit-gebru-ai-research-dair/ • Kantayya, Shalini (Director). (2020). <i>Coded Bias</i> [Film]. 7th Empire Media, Chicken & Egg Pictures, Ford Foundation - Just Films. https://www.codedbias.com/ • Lee, D. (2018, November 3). Why Big Tech pays poor Kenyans to teach self-driving cars. <i>BBC News</i>. https://www.bbc.com/news/technology-46055595 • Valentino-DeVries, Jennifer, et al. (2018, Dec 10). "Your Apps Know Where You Were Last Night, and They're Not Keeping It Secret." <i>The New York Times</i>. https://www.nytimes.com/interactive/2018/12/10/business/location-data-privacy-apps.html <p>Assignment: Final Podcast Assigned</p>	12/5
<p>Week 12 11/7; 11/9</p>	<p>Topic: Voice Technology in Art I Summary: Students will discover the ways that voice technology changed the way we create art, with a particular focus on microphones and recording technology and radio, and how they changed the ways that Americans spoke, sang, and participated in the public sphere. We will also consider the intersections of race and gender and early radio and recording technology, and how technological bias may have led to bias against women on air. Required Readings/Works:</p> <ul style="list-style-type: none"> • Ford, P. (2013, May 8). How Bing Crosby and the Nazis Helped to Create Silicon Valley. <i>The New Yorker</i>. https://www.newyorker.com/tech/annals-of-technology/how-bing-crosby-and-the-nazis-helped-to-create-silicon-valley • Fallows, J. (2015, June 5). That Weirdo Announcer-Voice Accent: Where It Came From and Why It Went Away. <i>The Atlantic</i>. https://www.theatlantic.com/national/archive/2015/06/that-weirdo-announcer-voice-accent-where-it-came-from-and-why-it-went-away/395141/ 	11/14

Week	Topics, Homework, and Assignments	Due Date
	<ul style="list-style-type: none"> • Lockheart, Paula (2010). A History of Early Microphone Singing, 1925–1939: American Mainstream Popular Singing at the Advent of Electronic Microphone Amplification. <i>Popular Music and Society</i>, 367-385. • Rider, J. F. (1928). Why Is a Radio Soprano Unpopular? <i>Scientific American</i>, 139(4), 334–337. https://doi.org/10.1038/SCIENTIFICAMERICAN1028-334 • Stamberg, S. (2014, April 9). Denied A Stage, She Sang For A Nation. <i>NPR</i>. https://www.npr.org/2014/04/09/298760473/denied-a-stage-she-sang-for-a-nation • Stamberg, S. (2006, December 19). The Roots of Audio Recordings Turn at 78 RPM. <i>NPR</i>. https://www.npr.org/2006/12/19/6645723/the-roots-of-audio-recordings-turn-at-78-rpm <p>Assignment: (none)</p>	
<p>Week 13 11/14; 11/16</p>	<p>Topic: Voice Technology in Art II</p> <p>Summary: Students will examine modern manipulations of the voice in the service of creative practice, including vocoding, harmonizers, autotune, Vocaloid, vocal chops, and glitch. We will pay particular attention to the role of these technological interventions in mediating the artist’s relationship to their body, particularly with respect race, age, and gender, and how artificial intelligence has completely changed the landscape of artistic creation.</p> <p>Required Readings/Works:</p> <ul style="list-style-type: none"> • Eidsheim, N. S. (2019). Vocaloid Refused, Reimagined, and Repurposed in <i>The Race of Sound: Listening, Timbre, and Vocality in African American Music</i>. Duke University Press. 115-150. • Luse, Brittany and Eric Eddings (Hosts) (2019, July 29). The Vindication of T-Pain. The Nod, from <i>Gimlet</i>. https://gimletmedia.com/shows/the-nod/kwh3nd • Blanchard, S. K. (2018, June 28). How SOPHIE and Other Trans Musicians Are Using Vocal Modulation to Explore Gender. <i>Pitchfork</i>. https://pitchfork.com/thepitch/how-sophie-and-other-trans-musicians-are-using-vocal-modulation-to-explore-gender/ • The New Yorker. (2014, August 20). The Secret History of the Vocoder [Video]. <i>YouTube</i>. https://www.youtube.com/watch?v=OvR4qK0B--w • Wille, Matt (2022, March 15). New Selena album uses software to artificially age singer's childhood voice. <i>InputMag</i>. https://www.inputmag.com/culture/new-selena-album-ai-singer-voice-unreleased-songs <p>Assignment: SELA 6: Create a work of art that involves the recording and manipulation of your voice</p>	<p>12/5</p>
<p>Week 14 11/21</p>	<p>Topic: AI Technology in the Media</p> <p>Summary: Students will examine the impact of technical design choices on who is represented in the media and how, with particular attention to race and gender. We will also examine AI journalism, including content moderation, text generation, social media curation, fact-checking, disinformation, and deepfakes.</p> <p>Required Readings/Works:</p> <ul style="list-style-type: none"> • Hume, E. (2016, May 23). <i>II. History: U.S. Talk Shows from Radio to Television and the Internet</i>. Ellen Hume, Media Analyst and Journalist. https://ellenhume.com/talk-show-culture/ii-history-u-s-talk-shows-from-radio-to-television-and-the-internet/ • Hutton, R. (2019, March 22). Stories by numbers: How BBC News is experimenting with semi-automated journalism. <i>BBC News Labs</i>. https://medium.com/bbc-news-labs/stories-by-numbers-how-bbc-news-is-experimenting-with-automated-journalism-3d8595a88852 • Steen, E., Yurechko, K., & Klug, D. (2023). You Can (Not) Say What You Want: Using Algospeak to Contest and Evade Algorithmic Content Moderation on TikTok. <i>Social Media + Society</i>, 9(3), 20563051231194584. https://doi.org/10.1177/20563051231194586 • LastWeekTonight. (2014, August 4). Native Advertising: Last Week Tonight with John Oliver (HBO) [Video]. <i>YouTube</i>. (note: contains some NSFW content/language; bleeped version posted on Canvas) https://www.youtube.com/watch?v=E_F5GxCwizc 	

Week	Topics, Homework, and Assignments	Due Date
	Assignment: (none this week – happy break!)	
Week 15 11/28; 11/30	<p>Topic: Democracy and the Collective Voice I</p> <p>Summary: Students will consider the role of technology in developing and maintaining movements requiring collective voice and action and their relationship to affecting change in governmental and social structures. In particular, they will discuss the role that art and social media play in sparking, fostering, and maintaining these movements.</p> <p>Required Readings/Works:</p> <ul style="list-style-type: none"> • Hobson, J. (2008). Everybody’s protest song: Music as social protest in the performances of Marian Anderson and Billie Holiday. <i>Signs</i>, 33(2), 443–448. https://doi.org/10.1086/521057/0 • Schlozman, Kay Lehman, Sidney Verba, and Henry E. Brady (2012). Introduction: Democracy and Political Voice in <i>The Unheavenly Chorus: Unequal Political Voice and the Broken Promise of American Democracy</i>. Princeton: Princeton University Press. 1-28. • Joshua A. Tucker, Megan Metzger, Duncan Penfold-Brown, Richard Bonneau, John Jost, & Jonathan Nagler. (2015). Protest in the Age of Social Media. <i>Carnegie Corporation International Peace and Security Program</i>. https://medium.com/carnegie-corporation-international-peace-and/protest-in-the-age-of-social-media-7ae9fd940b06 • Rahimpour, R. (2022, October 5). Mahsa Amini: How one woman’s death sparked Iran protests. <i>BBC News</i>. https://www.bbc.com/news/av/63132235 • Tallon, T. (2018, September 3). A Century of “Shrill”: How Bias in Technology Has Hurt Women’s Voices. <i>The New Yorker</i>. https://www.newyorker.com/culture/cultural-comment/a-century-of-shrill-how-bias-in-technology-has-hurt-womens-voice <p>Assignment: SSR 5: on identifying misinformation and media bias</p>	12/5
Week 16 12/5	<p>Topic: Democracy and the Collective Voice II</p> <p>Summary: Students will examine current legislative efforts to address ethical issues relating to AI, privacy, surveillance capitalism, differential privacy and Census data, ownership of one’s data (and voice), misinformation, and democracy.</p> <p>Required Readings/Works:</p> <ul style="list-style-type: none"> • Bureau, U. C. (2021, May 7). <i>The Census Bureau’s Simulated Reconstruction-Abetted Re-identification Attack on the 2010 Census</i>. Census.Gov. https://www.census.gov/data/academy/webinars/2021/disclosure-avoidance-series/simulated-reconstruction-abetted-re-identification-attack-on-the-2010-census.html • The White House Office of Science and Technology Policy (2022). Blueprint for an AI Bill of Rights. https://www.whitehouse.gov/ostp/ai-bill-of-rights/ • Gonzalez, O. (2023, November 8). AI Misinformation: How It Works and Ways to Spot It. <i>CNET</i>. https://www.cnet.com/news/misinformation/ai-misinformation-how-it-works-and-ways-to-spot-it/ • Jones. (2023, November 11). <i>California Schools Will Require Students to Learn to ID Fake News, Misinformation</i>. KQED. https://www.kqed.org/news/11967044/california-schools-will-require-students-to-learn-to-id-fake-news-misinformation • Kukutai, T., & Cormack, D. (2020). Pushing the space. <i>Indigenous Data Sovereignty and Policy</i>, 21–35. https://doi.org/10.4324/9780429273957-2/PUSHING-SPACE-TAHU-KUKUTAI-DONNA-CORMACK • Norval, A. (2009). Democracy, pluralization, and voice. <i>Ethics & Global Politics</i>, 2:4, 297-320, DOI: 10.3402/egp.v2i4.2118 <p>Assignment: SSR 6: evaluate your Statement of AI Utility</p>	12/16

IV. Student Learning Outcomes (SLOs)

Content: *Students demonstrate competence in the terminology, concepts, theories and methodologies used within the discipline(s).*

- Identify, describe, and explain the different methodological approaches scholars, engineers, and artists have taken to understand the human voice and its relationship to technology, with a specific focus on AI (**Quest 1, H**).

Assessments: SELAs, SSRs, analytical papers, final podcast, class discussions

- Identify, describe, and explain various developments in voice technology including their specific goals, social and political contexts, and applications to the arts, industry, and public sectors (**Quest 1, H**).

Assessments: SELAs, SSRs, analytical papers, final podcast, class discussions

- Identify, describe, and explain how voice technology (and artificial intelligence in particular) has influenced the formation of various individual and collective intersectional identities, both presently and throughout history (**Quest 1, H, D**).

Assessments: SELAs, SSRs, analytical papers, final podcast, class discussions

Critical Thinking: *Students carefully and logically analyze information from multiple perspectives and develop reasoned solutions to problems within the discipline(s).*

- Evaluate select historical, sociological, philosophical, literary, and artistic works that contributed to the development of voice technology, artificial intelligence, and the public policies that regulate them (**Quest 1, H**).

Assessments: SELAs, SSRs, analytical papers, final podcast, class discussions

- Analyze primary documents such as patents, scientific research papers, interviews, and works of art, and develop critical interpretations of their significance to the development of voice technology, artificial intelligence, and society (**Quest 1, H**).

Assessments: SELAs, SSRs, analytical papers, final podcast, class discussions

- Evaluate specific ways in which voice technologies and artificial intelligence have influenced the formation of intersectional identities, both individually and societally (**Quest 1, H, D**).

Assessments: SELAs, SSRs, analytical papers, final podcast, class discussions

Communication: *Students communicate knowledge, ideas and reasoning clearly and effectively in written and oral forms appropriate to the discipline(s).*

- Develop and present in writing clear and effective responses to essential questions about the human voice and its technological mediation based on their analysis of primary sources (**Quest 1, H**).

Assessments: SELAs, SSRs, analytical papers

- Communicate orally and in writing the relationship between voice technology, AI, and society (**Quest 1, H**).

Assessments: SELAs, SSRs, analytical papers, final podcast, class discussions

Connection: *Students connect course content with meaningful critical reflection on their intellectual, personal, and professional development at UF and beyond.*

- Connect course themes like identity formation, embodiment, human-centered design principles, and the role of the voice in shared governance to their own intellectual, personal, and professional development at UF and beyond (**Quest 1**).

Assessments: SELAs, SSRs, analytical papers, final podcast, class discussions

- Reflect on their own experience and ways in which their personal voice has contributed to the various intersectional identities they hold and how they assert themselves in different contexts **(Quest 1)**.

Assessments: SELAs, SSRs, analytical papers, final podcast, class discussions

- Reflect on what current technologies have influenced the development of their voices and identities, both privately and publicly **(Quest 1)**.

Assessments: SELAs, SSRs, analytical papers, final podcast, class discussions

- Imagine and predict what future technological interventions may play crucial roles in the way voices are recorded, transmitted, and reproduced, and how those interventions will impact society **(Quest 1)**.

Assessments: SELAs, SSRs, analytical papers, final podcast, class discussions

V. Required Policies

Attendance Policy

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Students Requiring Accommodation

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting

<https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

UF Evaluations Process

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

University Honesty Policy

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received

unauthorized aid in doing this assignment.” The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Counseling and Wellness Center

Contact information for the Counseling and Wellness Center: <http://www.counseling.ufl.edu/> , 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

The Writing Studio

The writing studio is committed to helping University of Florida students meet their academic and professional goals by becoming better writers. Visit the writing studio online at <http://writing.ufl.edu/writing-studio/> or in 2215 Turlington Hall for one-on-one consultations and workshops.

In-Class Recordings

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.