Disability, Technology, & Artificial Intelligence Spring 2023

Special Topics in Data Science and Business Analytics: DSBA 6010, 26287
Topics in Computer Science: ITCS 4010, 26297
Topics in Computer Science: ITCS 5010, 26298
Topics in Software & Info Syst: ITIS 4010, 26360
Topics in Software & Info Syst: ITIS 6010, 26363
Adv Topics in Identity/Society: PHIL 4990, 25683
Topics in Philosophy: PHIL 5050, 25684

Time: Thursdays, 5:30 pm - 8:15pm
Room: Winningham 107
Instructor: Dr. Damien P. Williams (he/him/his); Assistant Prof. Philosophy & Data Science
Mailbox: Winningham 105
Email/Google Hangout: dwill328@uncc.edu
Office Hours: Wednesdays, 3pm on Zoom; also available by appointment

Course Description

Disabling AI is a 15-week course especially crafted to be interesting and accessible to any student—whether in computer science, engineering, or liberal arts and human sciences, and regardless of their graduate career stage—who seeks to learn more about algorithms and AI, and their implications for society. Introductory and advanced readings for the course will be drawn from science, technology, and society; gender, bodies, and technology, disability studies; sociology; philosophy of technology, ensuring that students have the grounding framework to delve into deeper questions about how technologies get constructed, and why certain problems seem to recur in technoscientific fields, at multiple points in history.

Why do facial recognition systems have problems with certain features and movements? Why can't autonomous vehicles recognize wheelchair users? Why do some people think there's a particular "right kind" of mind or body? In this course, we will examine the historical foundations of all of these questions and more, as well as case studies where they have played out in the real lives of humans, today, with life or death results. We will then ask what it means that automated and algorithmic systems are being built to emulate and replicate these situations, and what researchers are doing, or could be doing better, to address this.

Students will be assessed on class participation, a self-created assignment plan, and leading at least one reading discussion, in person or online. This allows students who don't want to speak in front of others, for whatever reason, to nevertheless have opportunities to refine their understanding of the material by preparing to teach it to others. Each student will also create one final project, to the parameters of their choice, as approved by me.

Learning Outcomes

Upon completion of this course, students should be able to:

- Describe, compare, and contrast several distinct perspectives as to whether and how beliefs and values affect the production of knowledge and technology
- Recognize and discuss the historical and philosophical foundations algorithms and artificial intelligence.
- Examine and articulate major themes in disability studies, philosophy of technology, STS, and GBT.
- Critically engage their own views of how knowledge, values, and belief impact the creation of technology.

Grading

Discussions 25%: 25% of your grade will be accounted for in Discussions. Each week you will participate in a discussion of the week's materials either in class, on the weekly discussion boards, or both. Additionally, you will sign up to ***lead*** or co-lead at least one week's class.

Choose Your Own Adventure — 75% Total:

As part of this class, you'll create a plan of study from this menu that amounts to7 50 points of activities (listed below). When I grade, 750 points = 100%, 675 points = 90%, 600 points = 80%, etc. *Please submit your plan by* **February 2 for approval** so *that you can be graded accordingly throughout the semester.* Remember: you can do multiples of some of these items.
Here's one example of a potential adventure plan:

300 points GPT Process + 225 points for 2 Book Reviews + 150 points Book Presentation + 75 points Questions = 750 points.

Project Options

Questions 75 pts: Please bring at least two questions to class each week. You can submit these by email prior to class or turn them in on a sheet of paper. We will visit some of the questions during class or pick up on them later in the semester. I will grade your questions for 10 class periods (10 points each / 5 points per question) to add up to 100 points.

Book Presentation 150 pts each: You can do more than one of these. You'll read a book and give a critical summary and explanation of it to the class. Presentations will be about 15-20 minutes, and the class can ask you questions afterward. *Run the book by your professor for approval first.* The book could be fictional as long as it presents ideas relevant to this class.

Book Review 112.5 pts each: You can do more than one, and you can approach a book review editor if there's a book you'd like to review for some journal. You'll read a scholarly book and submit a book review (like what you would find in a scholarly journal). Book reviews should be short, but detailed. **** Class/work-hack: You can do a Book Presentation and a Book Review on the same book, and then also use class feedback to get your book review ready to send to a book review editor of a scholarly journal.****

Syllabus Creation 300 pts: You can create a syllabus that you could imagine yourself teaching for a course on any theme that strongly intersects with the material in this course. Your syllabus

should not be the same as mine is here. Consider grading, the structure of content, the frequency of class meeting, the pace of the course, the technology you'll use. After creating this syllabus and turning it in (by April 5), you will make an appointment with your instructor for a conversation about your choices. Ideally, this feedback will help you think about what you might teach and how you might teach in the future. A final version of this syllabus will be due by the end of the semester.

Due to gross ethical mismanagement by OpenAI, I'm removing this experimentation option from the syllabus, and I'll be replacing it with something else. Details TK.
~~**Chat GPT 300 pts:** Generate a Chat GPT output on one or more themes or topics related to disability, technology, and artificial intelligence, and then expand on and correct the output with specific references and citations from our class readings and lectures. Your full submission will consist of~~
- ~~The prompt you used;~~
- ~~The original GPT output;~~
- ~~Your corrections of the GPT output;~~
- ~~And your reflections on what it got wrong or otherwise failed to do.~~

Choose Your Own Project: Propose the percentage points and activity. You could propose to write a short story exploring some class-related theme, do a group project (if you can convince your peers), give a special class presentation, create a multi-media something, shoot a short documentary, provide a scholarly review, write a standard research paper, etc. See your instructor to discuss your idea. Hot tip: Google "Judith Butler Explained with Cats" for a fun idea – or just an academic chuckle.

Health Resources

Mental health concerns or stressful events may reduce a student's ability to participate in daily activities or diminish academic performance. Services are available to assist you with addressing these and other concerns you may be experiencing. You can learn more about the broad range of confidential mental health services available on campus via the links below.

If you are struggling academically with this class, please visit me during office hours or contact me by email.

You can also meet with your academic advisor if you are struggling academically in multiple classes, unsure whether you are making the most of your time at UNC Charlotte, or unsure what academic resources are available at UNC Charlotte.

Center for Counseling and Psychological Services**:**
https://caps.charlotte.edu/

Student Health Center:
https://studenthealth.charlotte.edu/

Student Pantry:
https://ninerpantry.charlotte.edu/

Inclusion Statement

Students with a disability recognized by the Americans with Disabilities Act should contact the Office of Disability Services in the Division of Academic Affairs for any accommodations. Students with disabilities are responsible for self-identification and are encouraged to contact DS. If you require any special arrangements or considerations for the class, please contact me immediately to arrange an appointment to discuss accommodations. See: **https://ds.charlotte.edu/accessibility-resources**

All students learn differently. If you are concerned that your learning style is not currently accommodated in the class, please contact me to discuss your individual learning needs

If the official UNCC roster does not list your preferred name or indicate your preferred pronouns, please let me know as soon as possible so I can adjust my roster accordingly. Similarly, this course affirms people of all gender expressions and gender identities. If you prefer to be called a different name than what is indicated on the class roster, please let me know. Feel free to correct me on your preferred gender pronoun. If you have any questions or concerns, please do not hesitate to contact me

All students and the instructor are expected to engage with each other respectfully. Unwelcome conduct directed toward another person based upon that person's actual or perceived race, actual or perceived gender, color, religion, age, national origin, ethnicity, disability, or veteran status, or for any other reason, may constitute a violation of University Policy 406, The Code of Studen

Responsibility. Any student suspected of engaging in such conduct will be referred to the Office of Student Conduct.

UNC Charlotte is committed to maintaining an environment conducive to learning for all students and a professional workplace for all employees. The University takes active measures to create or restore a respectful, safe, and inclusive environment for community members that is free from discrimination, discriminatory harassment, and interpersonal violence. If you (or someone you know) has experienced any of these incidents, know that you are not alone. UNC Charlotte has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with civil protective orders, and more.

Title IX and Mandatory Reporting

Please be advised that, as a faculty member, I am a mandatory reporter, which means that I am obligated to notify the Title IX Office if I am given knowledge about sexual assault or violence by other employees and students.

If you wish to speak to someone confidentially, you can contact the following on-campus resources, who are not required to report the incident to the Office of Civil Rights and Title IX: (1) University Counseling Center (counselingcenter.charlotte.edu, 7-0311); or (2) Student Health Center (studenthealth.charlotte.edu, 7-7400). Additional information about your options is also available at civilrights.charlotte.edu under the "Students" tab.

Other Forms of Assistance

The Writing Resources Center has online resources as well as personal assistance to help strengthen your writing, which is crucial to success in any future career. If you feel that you are

missing the mark or if your writing is not accomplishing what you want, check them out at https://writing.charlotte.edu/writing-resources-center or contact them by by Phone: 704-687-1899 and by Email: wrchelp@uncc.edu.

You can work with the Office of Student Assistance and Support Services (SASS) to notify me of **emergency absence situations**. In such situations, the SASS office may also be able to assist with verification of such emergencies, once a student is able to return to classes. The SASS office does not provide verification of absences for car trouble, weather issues, personal activities, work, weddings, vacations, or University-sponsored events. Absences related to such activities should be discussed directly with the faculty member.

Tentative Schedule

Week One & Two: Some Current Trends in Disability and "AI"

We will discuss in class:

Tucker, Emily. "Artifice and Intelligence." *Center on Privacy & Technology at Georgetown Law Blog*, Medium. March 8, 2022. https://medium.com/center-on-privacy-technology/artifice-and-intelligence%C2%B9-f00da128d3cd.

Hao, Karen. "Can You Make an AI That Isn't Ableist?" 2018. https://www.technologyreview.com/s/612489/can-you-make-an-ai-that-isnt-ableist/.

Caliskan, Aylin; Bryson, Joanna J.; Narayanan, Arvind. "Semantics Derived Automatically From Language Corpora Contain Human-Like Biases." 2017.

Emily M. Bender, Timnit Gebru, Angelina McMillan-Major, and Shmargaret Shmitchell. 2021. "On the Dangers of Stochastic Parrots: Can Language Models Be Too Big? 🦜." In Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency (FAccT '21). Association for Computing Machinery, New York, NY, USA, 610–623.

Matthew R. Francis "The Ethics of Artificial Intelligence-Generated Art"

Wong, Alice. The Disability Visibility Project. https://disabilityvisibilityproject.com/about/.

Optional:

Baraniuk, Chris. "Exclusive: UK police wants AI to stop violent crime before it happens." 2018. https://www.newscientist.com/article/2186512-exclusive-uk-police-wants-ai-to-stop-violent-crime-before-it-happens/.

Biddle, Sam. "Homeland Security Will Let Computers Predict Who Might Be a Terrorist on Your Plane—Just Don't Ask How It Works." 2018. https://theintercept.com/2018/12/03/air-travel-surveillance-homeland-security/.

Week Three: Algorithms, "AI," and Thinking Machines

Alan Turing

- Hodges, Andrew. "Alan Turing —a short biography." 1995.
- Pages 651-688 in *Alan Turing*:
    - "Turing and the Physics Of The Mind" by B. Jack Copeland
    - "Can Digital Computers Think?" by Alan Turing
    - "Intelligent Machinery: A Heretical Theory" by Alan Turing
    - "Can Automatic Calculating Machines Be Said To Think?" by Alan Turing (with Richard Braithwaite, Geoffrey Jefferson, and Max Newman)

Walter, W. Grey. "A Machine That Learns." 1951.

Wilson, Elizabeth A. *Affect and Artificial Intelligence*. 2010.

Angwin, Julia, Lauren Kirchner, Jeff Larson, Seongtaek Lim, Surya Mattu, and Terry Parris Jr. "Breaking the Black Box" series (2016). *ProPublica*.
—. Part 1: "What Facebook Knows About You." September 28, 2016. https://www.propublica.org/article/breaking-the-black-box-what-facebook-knows-about-you.
—. Part 2: "When Algorithms Decide What You Pay." October 5, 2016. https://www.propublica.org/article/breaking-the-black-box-when-algorithms-decide-what-you-pay.
—. Part 3: "When Machines Learn by Experimenting on Us." October 12, 2016. https://www.propublica.org/article/breaking-the-black-box-when-machines-learn-by-experimenting-on-us.
—. Part 4: "How Machines Learn to Be Racist." October 19, 2016. https://www.propublica.org/article/breaking-the-black-box-how-machines-learn-to-be-racist.

Week Four: Cybernetics

"Ctesibius Of Alexandria." 2018. https://www.britannica.com/biography/Ctesibius-of-Alexandria.

Norbert Wiener
—Excerpts from *Cybernetics or Control and Communication in the Animal and the Machine*. 1948.
—Excerpts from *The Human Use of Human Beings: Cybernetics and Society*. 1989.

Manfred Clynes and Nathan S. Kline
— "Cyborgs and space." 1960. (With Nathan S. Kline) http://web.mit.edu/digitalapollo/Documents/Chapter1/cyborgs.pdf.

Williams, Damien Patrick: "Heavenly Bodies: Why It Matters That Cyborgs Have Always Been About Disability, Mental Health, and Marginalization." 2019. https://ssrn.com/abstract=3401342

Week Five: Technology and Bodyminds

The Cyborg Jillian Weise, "The Dawn of the 'Tryborg.'" *New York Times* (New York, NY), November 30, 2016. https://www.nytimes.com/2016/11/30/opinion/the-dawn-of-the-tryborg.html?_r=1#story-continues-1.

—. "Common Cyborg." *GRANTA*. Sep 24, 2018. https://granta.com/common-cyborg/.

—. "My Brain Is Already Cyborg," *WIRED*. December 21, 2021. https://www.wired.com/story/cyborg-brain-mind-pandemic-philosophy/.

Shew, Ashley. "Speculating on Up-Standing Norms." 2023. (This is a Preprint of an in-press paper; do not distribute it outside of this class.)

Price, Margaret. "The Bodymind Problem and the Possibilities of Pain." 2015.

The Crippled Scholar. "When Celebrating Accessible Technology is Just Reinforcing Ableism." 2015. https://crippledscholar.com/2015/07/04/when-celebrating-accessible-technology-is-just-reinforcing-ableism/

Kane, Natalie. "'Means Well' Technology Technology and the Internet of Good Intentions." 2016. https://medium.com/@nd_kane/means-well-technology-and-the-internet-of-good-intentions-3726ad580c9e.

Week Six: Technology and Human Social Values

Winner, Langdon. "Do Artifacts Have Politics." 1980.

Kranzberg, Melvin. "Technology and History: 'Kranzberg's Laws'." 1986..

Pinch and Bijker, "The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other," in *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*. 1987.

Browne, Simone. *Dark Matters*. 2015.

del Barco, Mandalit. "How Kodak's Shirley Cards Set Photography's Skin-Tone Standard." 2014. https://www.npr.org/2014/11/13/363517842/for-decades-kodak-s-shirley-cards-set-photography-s-skin-tone-standard.

Wittkower, D.E. (2016, 13-14 May 2016). "Principles of anti-discriminatory design." Paper presented at the 2016 IEEE International Symposium on Ethics in Engineering, Science and Technology (ETHICS). Philosophy Faculty Publications. 28. https://digitalcommons.odu.edu/philosophy_fac_pubs/28

Week Seven: Race and Facial Recognition

Cave, Stephen, and Kanta Dihal. "The Whiteness of AI." *Philosophy & Technology* 33.4 (2020): 685-703. https://doi.org/10.1007/s13347-020-00415-6.

Garvie, Clare; et al. "The Perpetual Line-up: Unregulated Police Face Recognition in America;" Georgetown Law's Center for Privacy & Technology. 2016. https://www.law.georgetown.edu/privacy-technology-center/publications/the-perpetual-line-up/

Angwin, Julia; Larson, Jeff; Mattu, Surya; Kirchner, Lauren. "Machine Bias: There's software used across the country to predict future criminals. And it's biased against blacks." *ProPublica*. May 23, 2016a2016. https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing.

—. "How We Analyzed the Compas Recidivism Algorithm." *ProPublica*. May 23, 2016b2016. https://www.propublica.org/article/how-we-analyzed-the-compas-recidivism-algorithm/

—. Analysis of Compas Dataset Records from the Boward County, Florida criminal courts. https://github.com/propublica/compas-analysis/.

Williams, Damien P. "Fitting the Description: Historical and Sociotechnical Elements of Facial Recognition and Anti-Black Surveillance," Journal of Responsible Innovation, 7:sup1, 74-83, DOI: 10.1080/23299460.2020.1831365

Week Eight: Algorithmic Search

Noble, Safiya U. *Algorithms of Oppression: How Search Engines Reinforce Racism*. 2018.

"How Google Search Works" https://support.google.com/webmasters/answer/70897?hl=en.

Week Nine: Data Regimes and Harmful Values

Eubanks, Virginia. *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*. 2018.

Hoffman, Anna Lauren. "Data Violence and How Bad Engineering Choices Can Damage Society" 2017. https://medium.com/s/story/data-violence-and-how-bad-engineering-choices-can-damage-society-39e44150e1d4

Week Ten: Disability and "AI"

Brown, Lydia X. Z., Michelle Richardson, Ridhi Shetty, Andrew Crawford. "Report: Challenging the Use of Algorithm-driven Decision-making in Benefits Determinations Affecting People with Disabilities." Center For Democracy and Technology. October 2020. https://cdt.org/insights/report-challenging-the-use-of-algorithm-driven-decision-making-in-benefits-determinations-affecting-people-with-disabilities/.

Threads on Koko's Use of GPT-3 in Mental Health Contexts:
http://web.archive.org/web/20230107210632/https://twitter.com/RobertRMorris/status/1611450197707464706.
http://web.archive.org/web/20230107191117/https://twitter.com/RobertRMorris/status/1611775514590740480.

"The Digital Futures in Mind Report"

Whittaker, Meredith, Meryl Alper, Cynthia L. Bennett, Sara Hendren, Liz Kaziunas, Mara Mills, Meredith Ringel Morris, Joy Rankin, Emily Rogers, Marcel Salas, Sarah Myers West. "Disability, Bias, and AI." AI Now Institute. November 2019. .

Week Eleven: Embodied Knowledge

Nagel, Thomas. "What Is It Like to Be a Bat?" Philosophical Review 83, no. 4 (1974): 435-500.

Collins, Patricia Hill, and Valerie Chepp. "Intersectionality." In *Oxford Handbook of Gender and Politics*, ed. L. Weldon. New York: Oxford University Press. 2013.

Hartsock, Nancy. "The Feminist Standpoint: Developing the Ground for a Specifically Feminist Materialism," in Harding, S.; Hintikka, M. B. *Discovering Reality: Feminist Perspectives on Epistemology, Metaphysics, Methodology, and Philosophy of Science*

Wood, Caitlin. *Criptiques*. 2014.

Ymous, Anon, Katta Spiel, Os Keyes, Rua M. Williams, Judith Good, Eva Hornecker, and Cynthia L. Bennett. 2020. '"I am just terrified of my future" Epistemic Violence in Disability Related Technology Research.' In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems* (*CHI EA '20*). Association for Computing Machinery, New York, NY, USA, 1–16. DOI: https://doi.org/10.1145/3334480.3381828.

Optional:

Williams, Damien P. "Constructing Situated and Social Knowledge: Ethical, Sociological, and Phenomenological Factors in Technological Design," appearing in *Engineering and Philosophy: Reimagining Technology and Social Progress*, edited by Guru Madhavan, Zachary Pirtle, and David Tomblin; Springer, Cham, 2021. 143-159.

Week Twelve: Gender, Neurodiversity, Disability, Technology

Kafer, Allison. *Feminist, Queer, Crip*. 2013.

Ustaszewski, Anya. "I don't want to be 'cured' of autism, thanks." 2009. https://www.theguardian.com/commentisfree/2009/jan/14/autism-health.

Williams, Rua Mae. "I, Misfit: Empty Fortresses, Social Robots, and Peculiar Relations in Autism Research." Techné: Research in Philosophy and Technology (2021).

Williams, Rua Mae; Gilbert, J. E. (2019). "'Nothing About Us Without Us': Transforming Participatory Research and Ethics in Human Systems Engineering"

Week Thirteen: Gender, Race, Neurodiversity, Disability, Technology

Hoffmann, Anna Lauren. "Data, Technology, and Gender: Thinking About (and From) Trans Lives." 2017.

Schalk, Sami. *Bodyminds Reimagined: (Dis)ability, Race, and Gender in Black Women's Speculative Fiction*. Durham, NC; London, UK. Duke University Press, 2018.

Wells-Jensen, Sheri. "The Case for Disabled Astronauts." 2018. https://blogs.scientificamerican.com/observations/the-case-for-disabled-astronauts/

Week Fourteen: Phenomenology and Crip Technoscience

Williams, Damien Patrick. "What It's Like To Be a Bot." 2018. http://reallifemag.com/what-its-like-to-be-a-bot/.

"Ableism, Technoableism, and Future AI." IEEE Technology and Society Magazine, Volume 39(1), March 2020, 40-85. DOI: 10.1109/MTS.2020.2967492.

Hamraie, A., & Fritsch, K. "Crip technoscience manifesto." 2019. https://catalystjournal.org/index.php/catalyst/article/view/29607/24771.

Weeks Fifteen: Free discussion and final projects workspace.

Suggested texts:

Ashby, Madeline. *Company Town*. 2016.

Baird, Davis. *Thing Knowledge*. 2004.

Behnke, Elizabeth A. "Edmund Husserl: Phenomenology of Embodiment." https://www.iep.utm.edu/husspemb/.

Code, Lorraine. *What Can She Know? Feminist Theory and the Construction of Knowledge*. 1991. https://books.google.co.ug/books?id=SWISMrtUSq4C&pg=PA16&lpg=PR4&focus=viewport.

Japyassú, H.F. & Laland, K.N. "Extended spider cognition." 2017. https://doi.org/10.1007/s10071-017-1069-7.

Garry, Ann and Pearsall, Marilyn. *Women, Knowledge, and Reality: Explorations in Feminist Philosophy*. 2nd ed. 1996.

Williams, Damien Patrick: "Consciousness and Conscious Machines: What's At Stake?" 2019. http://ceur-ws.org/Vol-2287/paper5.pdf.