HU WISU
Humboldt Winter and Summer University

Law in the Age of Algorithms: Interdisciplinary Investigations

25 July – 19 August 2022

Syllabus

Session 1: Introduction

In our first session we will get to know each other, talk about our preconceptions concerning algorithmic technologies and their societal impact, and discuss our expectations and wishes for the coming weeks.

Readings and assignments:
Bring a local newspaper article (from your country/region of residence) dealing with automated technologies ("Artificial Intelligence", "Machine Learning"). Think about what different impacts the technology has on society.

Optional reading:
Browse the Artificial Intelligence Incident Database, https://incidentdatabase.ai/
patio11 (2010). Falsehoods Programmers Believe about Names. <https://www.kalzumeus.com/2010/06/17/falsehoods-programmers-believe-about-names/>

Session 2: First forays into the field of Artificial Intelligence

The second session will provide an overview on AI research to make sure that our discussions rest on a shared understanding of the topic at hand. We will discuss the introductory chapter of a widely used textbook on AI.

Readings and assignments:
Peter Norvig & Stuart J. Russel (1995/2020). *Artificial Intelligence: A modern approach.* 4th edition: 1–35.

To prepare the session, read the text thoroughly and write down any questions that come to mind. Also reflect on which areas are new to you and which seem familiar. Try to think about which parts of the text might have been revised since the first edition was published in 1995.

Optional reading:
Emily Tucker (2022). *Artifice and Intelligence*. <https://medium.com/center-on-privacy-technology/artifice-and-intelligence%C2%B9-f00da128d3cd>.
Meredith Whittaker, 'The steep cost of capture' (2021) *Interactions* 28(6): 50.
Melanie Mitchell (2019). *Artificial Intelligence. A Guide for Thinking Humans*.

University of Cambridge, Department of History and Philosophy of Science (2020). *Histories of AI: A Genealogy of Power – Model Syllabus*. <https://www.ai.hps.cam.ac.uk/outputs/model-syllabus>

Session 3: Machine Learning 1 - Origins, assumptions and objectives

In our first session on Machine Learning we will investigate why Machine Learning approaches came to dominate the field of Artificial Intelligence, what assumptions these technologies incorporate and what objectives they pursue. We will also get to know the different basic approaches to Machine Learning and become acquainted with some of the problems computer engineers regularly face in constructing Machine Learning systems.

Readings and assignments:

Michael I. Jordan Tom M. Mitchell, 'Machine learning: Trends, perspectives, and prospects' (2015) *Science* 349(6245): 255-260.

To prepare the session, read Jordan and Mitchell's text and try to answer the following questions: How do the authors define Machine Learning? What examples of Machine Learning do they provide? Which three different paradigms of Machine Learning do the authors list?

Optional reading:

Alon Halevy, Peter Norvig and Fernando Pereira, 'The unreasonable effectiveness of data' (2009) *IEEE Intelligent Systems* 24(2): 8.

Pedro Domingos, 'A few Useful Things to Know about Machine Learning' (2012) *Communications of the ACM* 55(10): 78.

Session 4: Machine Learning 2 - An Overview of the Machine Learning Pipeline

In our second session on Machine Learning we will take a deep dive into the Machine Learning pipeline to understand how developers go about creating Machine Learning systems. Students will become familiar with the different stages of the Machine Learning development process and gain a practical understanding of what challenges Machine Learning software engineers are faced with.

Readings and assignments:

Paul Friedl, 'Dis/similarities in the Design and Development of Legal and Algorithmic Normative Systems: the Case of *Perspective API*' (introduction and chapters 1 and 2).

To prepare the session, read the text critically and write down any questions that come to mind. Based on what you have heard about Machine Learning programming so far, do you agree with the author's depiction of Machine Learning programming trajectories? Do you disagree with the author's depiction with regard to other issues?

Session 5: Machine Learning 3 - Problematizations

Proponents of Machine Learning often advertise these technologies as rational, neutral and value-free. The label "Artificial Intelligence" itself connotes an idea of pure mathematics or pure intelligence. In this final session on Machine Learning we will further problematize such framings, by shedding light on the (value) choices Machine Learning necessarily implicated in the construction of any automated systems. To this end, the students will split up in smaller

groups, each tasked to map common value choices focus implicated in one of the phases of Machine Learning development.

Session 6: Machine Learning 4 – Reports and exchange

In session 6 students will report the findings of their research conducted in session 5 to the group and discuss them.

Session 7: Privacy and Power I

In our first session on the social consequences of Machine Learning systems, we will look at the concept of privacy. Privacy has long been held as the primary normative value protecting individuals against the power of institutions in possession of their personal information. These days, however, academics are increasingly doubting whether privacy still holds explanatory or normative relevance. In this first session on privacy and power, we will look at different concepts of privacy and debate which potential different privacy concepts hold for analyzing and critiquing the specific issues raised by algorithmic automation and AI technologies.

Readings and assignments:

Rainer Muehlhoff, Rainer. 'Predictive privacy: towards an applied ethics of data analytics' (2021) *Ethics and Information Technology* (23): 675–690.

Before reading Muehlhoff's text ask yourself: What is the value of privacy?
Then read Muehlhoff's text closely. Do you agree with Muehlhoff's proposals? How could one counter Muehlhoff's proposals?

Optional reading:

Philip E. Agre, 'Surveillance and capture: Two models of privacy' (1994) *The Information Society* 10(2): 101

Julie E. Cohen, 'What Privacy is For' (2013) *Harvard Law Review* 126(7): 1904.

Mireille Hildebrandt, 'Privacy as Protection of the Incomputable Self: From Agnostic to Agonistic Machine Learning' (2019) *Theoretical Inquiries in Law* 20(1): 83-121.

Daniel J. Solove and Danielle Keats Citron, 'Privacy Harms' (2021) 102 *Boston University Law* Review: 793

Session 8: Privacy and Power II

In our second session on Privacy and Power, we will engage with one legal framework attempting to protect citizens' digital privacy: the European Union's General Data Protection Regulation (GDPR). After having been given an overview of the GDPR's central regulatory elements, students will simulate a moot procedure before a data protection authority.

Session 9: Public Administration I

After students have researched examples of how algorithmic technologies are introduced into public administration in their own home country or region, the course will question how algorithmic automation changes public administration processes and what kinds of risks it introduces for citizens.

Readings and assignments:

Danielle Keats Citron, 'Technological due process' (2007) 85 *Wash. UL Rev.*: 1249.

Optional reading:

Aziz Z Huq, 'Constitutional Rights in the Machine-Learning State' (2019) 105 *Cornell L. Rev.*: 1875 (especially 1892-1917; 1938-1952)

Mireille Hildebrandt, 'Algorithmic Regulation and the Rule of Law' (2018) 376 *Philosophical Transactions of the Royal Society*: 1

Session 10: Public Administration II

Tba; students will choose a topic, possibly a case study on the impacts of AI on migration, social benefits, etc.

Session 11: Labor I

One social sphere in which algorithmic automation has proliferated extensively is the sphere of labor. Besides getting familiar with some of the central ways in which algorithmic technologies are transforming workplaces as well as the effects these transformations have on workers, we will also take a closer look at different methodologies and approaches to studying such transformations academically.

Readings and assignments:

Rabih Jamil, 'Uber and the making of an Algopticon - Insights from the daily life of Montreal drivers' (2020) 44(2) Capital and Class: 241.

Simon Schaupp, 'Technopolitics from Below: A Framework for the Analysis of Digital Politics of Production' (2021) NanoEthics (15): 71–86.

Read one of the two texts.

Optional reading:

Alessandro Delfanti, 'Machinic dispossession and augmented despotism: Digital work in an Amazon warehouse' (2021) *New Media & Society* 23(1): 39.

Session 12: Labor II

In our second session on labor we will investigate how the introduction of algorithmic technologies in the workplace interferes with current legal protections and which strategies regulators are adopting to rein in (or pass over) potential harms to workers.

Readings and assignments:

Maarten Buyl, Christina Cociancig, Cristina Frattone, Nele Roekens, 'Tackling Algorithmic Disability Discrimination in the Hiring Process: An Ethical, Legal and Technical Analysis' (2022) *FAccT '22: 2022 ACM Conference on Fairness, Accountability, and Transparency*: 1071.

Optional reading:

Miriam Kullmann, 'Platform work, algorithmic decision-making, and EU gender equality law' (2018) 34.1 *International Journal of Comparative Labour Law and Industrial Relations*: 1.

Adrian Todolí-Signes, 'Spanish Riders Law and the Right to Be Informed about the Algorithm' (2021) *European Labour Law Journal* 12(3): 399

Jeremias Adams-Prassl, 'Regulating Algorithms at Work: Lessons for a "European Approach to Artificial Intelligence"' (2022) *European Labour Law Journal* 13(1): 30

Session 13: Gender I

In this session, we will engage with a feminist, intersectional critique of algorithmic technologies. How does gender play a role in data science and automated technologies and how does it manifest in technologies?

Readings and assignments:

Lily Hu and Issa Kohler-Hausmann,'What's sex got to do with machine learning?' (2020) *FAT* '20: Proceedings of the 2020 Conference on Fairness, Accountability, and Transparency. January 2020*: 513.

Sarah Myers West, 'Redistribution and Rekognition: A Feminist Critique of Algorithmic Fairness' (2021) *Catalyst: Feminism, Theory, Technoscience,* 6(2): 1.

Lauren F. Klein and Catherine D'Ignazio, *Data Feminism* (2020): 1–47.

Choose one of the texts and read the text closely.

Session 14: Gender II

This session will focus on specific strategies to overcome the gender bias identified in the first session. We will discuss a range of approaches and evaluate their use.

Readings and assignments:

Caitlin Kraft-Buchnan and Renée Arian, 'Affirmative Action for Algorithms. Artificial Intelligence, Automated Decision-Making & Gender' (2019): *A+ Alliance Position Paper*.

Sasha Costanza-Chock, 'Design Justice, A.I., and Escape from the Matrix of Domination' (2018), *Journal of Design and Science*: 1.

Choose one of the texts and read the text closely.

Session 15: Private law I - Liability

Autonomous robots and software agents can damage property, injure individuals, cause economic loss or immaterial harm. In such cases, should their users and/or owners be liable? In this lecture we will discuss the applicability of existing liability regimes (strict liability, vicarious liability, fault liability) to AI users and owners. Moreover, we will look into ad hoc provisions and proposals, such as the European Parliament's Resolution on liability for AI of 20th October 2020 and the amendments to the German Road Traffic Act to accommodate self-driving cars.

Readings and assignments:

Public Consultation on Civil Liability. Adapting Liability Rules to the Digital Age and Artificial Intelligence. Response of the European Law Institute (2022) (only pp. 21-27).

Christiane Wendehorst, 'Strict Liability for AI and other Emerging Technologies' (2020) *Journal of European Tort Law* (11): 150.

Optional reading:

Woodrow Barfield, 'Liability for autonomous and artificially intelligent robots' (2018) *Paladyn, Journal of Behavioral Robotics* (9): 193–203.

Session 16: Private law II - Contracting

The use of AI in contracting raises manifold challenges for contract law. AI contracting applications comprise software agents which autonomously negotiate and conclude contracts, requiring little to no human input. Examples include algorithmic trading on financial markets and on cryptocurrency exchanges, or transactions initiated by smart devices. In this lecture, we will discuss whether AI-driven contract formation is compatible with fundamental tenets of contract law, such as freedom of contract and mutual agreement, and we will enquiry the validity and enforceability of contracts concluded by software agents under contract law.

Readings and assignments:

Richard Kestenbaum, 'A Company Called Pactum Shows The Power Of Artificial Intelligence's Impact On Walmart And All Retail' (Forbes, 23 November 2020) <https://www.forbes.com/sites/richardkestenbaum/2020/11/23/a-company-called-pactum-shows-the-power-of-artificial-intelligences-impact-on-walmart-and-all-retail/>.

Giovanni Sartor, 'Contracts in the Infosphere', in Stefan Grundmann (ed), European Contract Law in the Digital Age (Intersentia 2018): 263-278.

Emad Abdel Rahim Dahiyat, 'Law and software agents: Are they "Agents" by the way?' (2021) 29 *Artificial Intelligence and Law:* 59–86.

Optional reading:

Vincent Ooi and Kian Peng Soh, 'Rethinking Mistake in the Age of Algorithms: *Quoine Pte Ltd v B2C2 Ltd*' (2020) 31 *King's Law Journal:* 367–372.

Session 17: Online discourse I

As online platforms have gained tremendous power as central fora of public discussion, concern is growing over their influence on societal discourse. In moderating on-site discussions, many large platforms rely on algorithmic technologies to identify and remove (allegedly) harmful, toxic or illegal content. In this first session on online discourse and online speech regulation, we will investigate how such technologies are utilized and what role they play in the larger moderation infrastructure.

Readings and assignments

Kate Klonick, 'The new governors: The people, rules, and processes governing online speech' (2017), *Harvard Law Review* (131): 1598, 1630-1658.

Nafia Chowdhury, 'Automated Content Moderation: A Primer', <https://cyber.fsi.stanford.edu/news/automated-content-moderation-primer>.

Read the indicated parts of Klonick's text. What was new to you concerning how content moderation is organized by different platforms? Then read Chowdhury's text. How might the technologies explained in Chowdhury's text have changed content moderation and its organization in particular?

Optional reading:

evelyn douek, 'Content Moderation as Administration' (2022, forthcoming) Harvard Law Review (136): 1-39

Tarleton Gillespie, 'Content Moderation, AI, and the Question of Scale' (2020) *Big Data & Society*, https://doi.org/10.1177/2053951720943234.

Jack M. Balkin, 'Old-School/New-School Speech Regulation' (2014) *Harvard Law Review* 127(8): 2296.

Niva Elkin-Koren, 'Contesting Algorithms: Restoring the Public Interest in Content Filtering by Artificial Intelligence' (July 2020) *Big Data & Society,* https://doi.org/10.1177/2053951720932296: 1-7.

Session 18: Online discourse II

In our second session on online discourse, we will look at academic and state proposals on how to regulate (or not regulate) online content moderation and take a close look at the EU's proposed Digital Services Act.

Readings and assignments:

Jack M. Balkin, 'How to Regulate (and Not Regulate) Social Media' (2020), <https://knightcolumbia.org/content/how-to-regulate-and-not-regulate-social-media>.

Read Balkin's text closely and critically.

Optional reading:

Caroline Cauffman and Catalina Goanta, 'A New Order: The Digital Services Act and Consumer Protection' (2021) *European Journal of Risk Regulation* 12(4): 758-774.

Joan Barata, 'The Digital Services Act and the Reproduction of Old Confusions', *Verfassungsblog*, 2 March 2021, <https://verfassungsblog.de/dsa-confusions/>

Session 19: Regulatory strategies

In our first session on regulatory strategies, we will engage with approaches to regulate the 'black box' of algorithmic technologies. We will take a critical look at proposals for "explainable AI", "accountable AI", "democratic AI" and Human-in-the-Loop (HITL)-involvement.

Readings and assignments

Faßbender, Judith. 2022. "Why explainable AI needs such a thing as society". 17 February 2022. DOI: 10.5281/zenodo.6076848.

Ben Green, 'The Flaws of Policies Requiring Human Oversight of Government Algorithms' (2021) https://arxiv.org/ftp/arxiv/papers/2109/2109.05067.pdf.

Video: Frank Pasquale on "The promise (and threat) of algorithmic accountability", https://www.lse.ac.uk/lse-player?id=3350.

Johannes Himmelreich, 'Against "Democratizing AI"' (2022) *AI & Society* doi.org/10.1007/s00146-021-01357-z.

Chose one of the texts/videos and read/watch it closely and critically.

Session 20: Inverting regulation – Design Justice

In our second session on regulatory strategies, we will engage with a critical view on the limits and possibilities of algorithmic systems. Inspired by design theory and practice, we will discuss and reflect the approaches discussed in Session 19 and make ourselves familiar with emancipatory, user-centered and community-driven approaches to technology development. What makes a "good AI system" in your eyes? How might that perception differ to other individuals' lived experiences?

Readings and assignments:

Sasha Costanza-Chock, *Design Justice* (2020) (recommended chapters: "Design Practices: "Nothing about Us without Us"" and "Directions for Future Work: From #TechWontBuildIt to #DesignJustice")

Session 21: AI Act I

In our first session on the EU's AI Act we will gain an overview of its general regulatory approach and learn about some of its advantages and disadvantages as highlighted by academics.

Optional reading:

Michael Veale and Frederik Zuiderveen Borgesius, 'Demystifying the Draft EU Artificial Intelligence Act—Analysing the good, the bad, and the unclear elements of the proposed approach' (2021) *Computer Law Review International* 22(4)*:* 97.

Nathalie A. Smuha and others, 'How the EU Can Achieve Legally Trustworthy AI: A Response to the European Commission's Proposal for an Artificial Intelligence Act' (2021) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3899991.

Luciano Floridi, 'The European Legislation on AI: A Brief Analysis of its Philosophical Approach' (2021), doi.org/10.2139/ssrn.3873273.

Session 22: AI Act II

In our second session on the EU AI Act we will investigate some of its regulatory elements in greater detail and compare the European approach to other global initiatives to regulate AI systems more broadly.

Session 23 & 24: Closure

In our last two sessions, we will reflect on the past weeks and collect our learnings. How has the course changed our understanding of societal and legal questions concerning algorithmic technologies? Which vision do we have for the future of AI in society? How can legal instruments help us? How do you plan to engage with the topic (academically, creatively, …) in the future?

The course and its syllabus are subject to change. Last update: 9 June 2022