CMSC 388L: Law and Computer Science

Course Description

Technology touches every aspect of our lives, accomplishing old tasks in new ways as well as creating entirely new industries. The legal system is entering a period of profound transformation brought on by these new technologies. The course will engage with two complementary questions: How is digital technology being deployed in key areas of legal work such as contracting and dispute resolution? How should current legal doctrine be applied to new technologies?

The structure of the course involves weekly readings and discussions as well as four essays throughout the course and a semester-long project building a service on top of a smart contract. The readings and essays will enable students to gain a deep understanding and think critically about current issues at the intersection of law and computer science. The project will encourage students to think creatively about societal needs and their legal and technical solutions, and to gain experience with smart contracts as well as thinking concurrently about technical challenges and legal considerations.

This course is modelled on Law and Computer Science taught by Rebecca Williams and Tom Melham at the University of Oxford.

Course Details

- Course: CMSC 398L -- Law and Computer Science
- Prerequisites: Students must have 45 credits; students must be Computer Science majors or minors or have permission of CMNS-Computer Science department. It is recommended that students have a background in computer science and broad familiarity with security, privacy, databases, and machine learning.
- Credits: 1
- Seats: 16
- Lecture Time: Fridays 11-11:50 or 11:00-12:30 (TODO)
- Location: TBD
- Semester: Fall 2020
- Course Facilitator: Yaelle Goldschlag
- Faculty Advisor: Neil Spring

Topics Covered

Unit 1: Introduction

- Week 01: Introduction to Law and Technology
    - What does vagueness mean? When is it desirable? Is vagueness the same in law and computer science?

Unit 2: Digital Technology in Legal Practice

- Week 02: Ethics - Technology, Fairness and Inequality
    - If a lawyer or a computer scientist can do something, should they?
    - To whom do computer scientists owe duties? Is this the same as for lawyers?
- Week 03-04: LegalTech and the Automation of Law
    - What is the purpose of contracts in law?
    - Can contract drafting and review be automated?
- Week 05: FinTech and Smart Contracts
    - Overview of legal contracts
    - Overview of blockchain and ethereum
    - What ambiguity exists in legal contracts? In smart contracts?
    - What role can smart contracts play? What steps still need to be done by a person?
    - Analysis of blockchain hype
- Week 06: Automated Dispute Resolution
    - What benefits are provided by the traditional courtroom?
    - What role can automation and virtual decision making play?

Unit 4: Privacy, Security and Identity

- Week 07-08: Privacy, Security and Identity
    - Analysis of current state of privacy
    - Analysis of GDPR and US privacy proposals (California, Privacy Bill of Rights)

Unit 5: Digital Technology and Substantive Law

- Week 09-11: Digital Technology and Substantive Law
    - Week 09: Big Data, Social Networks and Competition Law
    - Week 10: Employment Law, Algorithmic Discrimination, and the Future of Work
    - Week 11: Algorithmic Decision Making and Public Law

Unit 6: Law + CS in Practice and Policy (dates TBD)

- I plan to bring in three guest speakers during the course. These speakers will be invited to speak throughout the course (not necessarily weeks 12-14). Tentative speakers include:
    - Sherry Safavi (Georgetown University Law Center)
    - Brenda Leong (Future of Privacy Forum)
    - Daniel Greene (Office of Senator Ed Markey)
    - Joey Wender (Office of Senator Ed Markey)
    - Paul Ohm (Georgetown)

Unit 5: Conclusion

- Week 14: Final presentations
- Week 15: Conclusion

Schedule

Readings and essays are due Friday before class. Essays should rely on the assigned readings as well as other sources. Essays for weeks 3, 6, and 12 are 1500 words. The midterm and final essays (weeks 9 and 15) are 2000 words.

Date	**Essays**
Week 03	Attempting to fully automate law is bound to end in failure. Do you agree? **OR** Are there any legal doctrines developed by reference to human beings which struggle in their application to machines? How can the interaction of computer science and law create such a problem or remedy it?
Week 06	Vagueness is the principle problem in automating the law. Discuss. **OR** When a private party's execution of a legal transaction is automated does this change the legal nature of that execution? How should law and computer science deal with this situation?
Week 09 (Midterm)	To what extent can or should dispute resolution be automated? What implications does this have for the role of lawyers? **OR** Will technology enable more or fewer people to access a formal mechanism of dispute resolution?
Week 15 (Final)	TBD

Students will work in groups of four or five to build a service on top of a smart contract. There will be deliverables throughout the course, with final presentations and demos in the second to last week of the course.

Date	**Smart Contract Service**
Week 01	Groups assigned (4 groups of 4)
Week 04	Due: Project Proposal
Week 07	Due: Detailed project plan, features, challenges
Week 10	Due: Project Demo
Week 13	Due: Presentation Draft
Week 14	Due: Final project and presentations

Students will prepare weekly readings ahead of each week's lecture and discussion. The readings will be useful for the essays.

Date & Topic	**Suggested Readings**
Week 01: Intro to Law and Technology (Sept 04)	No reading assigned.
Week 02: Ethics - Technology, Fairness and Inequality (Sept 11)	Tony Smith, Glanville Williams: Learning the Law (16th ed), Ch 1 Mireille Hildebrandt, Law for Computer Scientists Chs 1-3 Douglas Heaven, "Deep Trouble for Deep Learning", Nature 574, 163-166 (2019). Timothy Endicott, "Law is Necessarily Vague" (2001) Legal Theory 7 379 Joel Reidenberg, "Lex Informatica" (1998) 76 Texas Law Review 553
Week 03: LegalTech and the Automation of Law (1/2) (Sept 18)	Law Society, Horizon Scanning: Artificial Intelligence and the Legal Profession (2018) David Howarth, Law as Engineering: Thinking About what Lawyers Do (Elgar, 2013), pp. 28-37 Kathryn Betts & Kyle Jaep, The Dawn of Fully Automated Contract Drafting: Machine Learning Breathes New Life into a Decades-Old Promise, 15 Duke Law & Technology Review 216 (2017)
Week 03: LegalTech and the Automation of Law (2/2) (Sept 25)	Erik Gerding, Contract as Pattern Language, 88 Washington Law Review 1323 (2013) David Lehr & Paul Ohm, Playing with the Data: What Legal Scholars Should Learn about Machine Learning 51 UC Davis Law Review 653, pp. 669-702 (2017) Nikolaos Aletras et al, Predicting judicial decisions of the European Court of Human Rights: a Natural Language Processing perspective, PeerJ Computer Science 2:e93 (2016)]
Week 05: FinTech and Smart Contracts (Oct 02)	The Economics of AI: a useful intro from Avi Goldfarb on YouTube here (16 mins long). Satoshi Nakamoto, Bitcoin: A Peer-to-Peer Electronic Cash System (2008) Ethereum White Paper Marco Iansiti & Karim Lakhani, The Truth About Blockchain, Harvard

	Business Review (2017) Nick Szabo, Smart Contracts (1994), The Idea of Smart Contracts (1997) James Grimmelmann, All Smart Contracts Are Ambiguous, 2 Journal of Law & Innovation 1 (2019)
Week 06: Automated Dispute Resolution (Oct 09)	Rabinovich-Einy, O. and Katsh, E., 2014. Digital Justice: reshaping boundaries in an online dispute resolution environment. The unbearable lightness of being? Shifts towards the virtual trial. Journal of Law and Society, 35(4), pp.464-489.
Week 07: Privacy, Security and Identity (1/2) (Oct 16)	S Wachter and B Mittelstadt – 'A right to Reasonable Inferences: Re-Thinking Data Protection Law in the Age of Big Data and AI' (2019) Columbia Business Law Review Issue 2 1 J Pila, 'Property in Human Genetic Material: An old legal question for a new technological age' D Solove Understanding Privacy (2008, Harvard University Press). Ch 5 C Sullivan, Digital Identity: An Emergent Legal Concept. Chs 2, 3 and 5
Week 08: Privacy, Security and Identity (2/2) (Oct 23)	de Montjoye, Radaelli, Singh and Pentland, 'Unique in the shopping mall" On the reidentifiability of credit card metadata (2015) Science 536-539 Degeling et al, 'We Value Your Privacy… Now Take Some Cookies: Measuring the GDPR's Impact on Web Privacy' NDSS Symposium 2019 empirical study
Week 09: Big Data, Social Networks and Competition Law (Oct 30)	Ezrachi, Ariel and Stucke, Maurice E., Sustainable and Unchallenged Algorithmic Tacit Collusion (November 10, 2018). University of Tennessee Legal Studies Research Paper No. 366. Oxford Legal Studies Research Paper No. 16/2019. Reuben Binns, Elettra Bietti, Dissolving privacy, one merger at a time: Competition, data and third party tracking, Computer Law & Security Review, 2019.
Week 10: Employment Law, Algorithmic	Jeremias Adams-Prassl and Max Van Kleek, Algorithmic Discrimination at work and beyond (2020). Javier Sanchez-Monedero, Lina Dencik, and Lilian Edwards 'What does it mean to solve the problem of discrimination in hiring? Social, technical and

Discrimination, and the Future of Work (Nov 6)	legal perspectives from the UK on automated hiring systems', 2020. Manish Raghavan, Solon Baracas, Jon Kleinberg, Karen Levy. "Mitigating Bias in Algorithmic Hiring: Evaluating Claims and Practices", 2019. Caroline Criado Perez. "Invisible Women: Exposing Data Bias in a World Made for Men", Chatto and Windus, 2019.
Week 11: Algorithmic Decision Making and Public Law (Nov 13)	European Commission, Expert Group on Liability and New Technologies: New Technologies Formation, Liability for Artificial Intelligence and other Emerging Digital Technologies (2019). Eric Talley, Automatorts: How Should Accident Law Adapt to Autonomous Vehicles? Lessons from Law and Economics, Columbia Law School Working Paper Series No. 19002 (2019). Gerhard Wagner, Robot Liability (July 14, 2018). Gerhard Wagner, Robot, Inc.: Personhood for Autonomous Systems?, 88 Fordham L. Rev. 591 (2019)
Week 12: Guest Speaker (Nov 20)	TBD
Week 13: Guest Speaker (Nov 27)	TBD
Week 14: Presentations (Dec 04)	No reading assigned.
Week 15: Conclusion (Dec 11)	No reading assigned.

Grading

Readings and essays are due Friday before class. Essays may be submitted up to one week late for a 10% penalty.

Percentage	Title	Description
20%	Participation	Grades based on participation in weekly seminar
20% (10% each)	Essays	1500 word essays due weeks 3, 6, and 12
20%	Project	Smart contract group project
20%	Midterm Essay	2000 word essay due week 9
20%	Final Essay	2000 word essay due week 15

Communicating with course staff

Interaction beyond the classroom is encouraged.

Instructor: Neil Spring (nspring@umd.edu)
Facilitator: Yaelle Goldschlag (ygoldsch@umd.edu)

Excused Absence and Academic Accommodations

See the section titled "Attendance, Absences, or Missed Assignments" available at Course Related Policies.

Disability Support Accommodations

See the section titled "Accessibility" available at Course Related Policies.

Academic Integrity

Note that academic dishonesty includes not only cheating, fabrication, and plagiarism, but also includes helping other students commit acts of academic dishonesty by allowing them to obtain copies of your work. In short, all submitted work must be your own. Cases of academic dishonesty will be pursued to the fullest extent possible as stipulated by the Office of Student Conduct. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit http://www.shc.umd.edu.

Course Evaluations

If you have a suggestion for improving this class, don't hesitate to tell the instructor or TAs during the semester. At the end of the semester, please don't forget to provide your feedback using the campus-wide CourseEvalUM system. Your comments will help make this class better.