

# MA534 Representing Law in Code

## Week 1 – Introduction: Legal Formulations in Code | Introduction

### Overview

Can the law be written in (computer) code? More importantly, what are the implications? The burgeoning field of legal informatics combines existing understandings in computation and computational theory to unpack information from legal texts.

In this module, we will provide a general overview of the course by outlining the landscape of computational technologies used to represent law. We begin to explore the area of “legal informatics” and its implications as a fundamentally interdisciplinary field.

### Readings

- David Lazer, et al. [Computational Social Science](#)
- Larry Lessig, [What Things Regulate](#) excerpt from [Codev2](#)
- Sandy Pentland, [A Perspective on Legal Algorithms](#)
- Ron Dolin, [Legal Informatics](#)
- Harry Surden, [Artificial Intelligence & Law: An Overview](#)
- Joshua Browder, [DoNotPay Robot Lawyer Demonstration](#) (Video); visit [DoNotPay.com](#)

### Exercise

#### Introduce Yourself

To get started, this discussion post will be used to introduce yourself to the class by telling us about yourself, your current workload, life experiences in the legal field, and what you expect from this course.

#### Discussion 1

The idea of Computational Law is not a new one. In fact, law has evolved throughout history from stone tablets to paper instruments to the myriad of instruments it inhabits today. Each of these evolutions includes with it a set of unique benefits, as well as a set of risks.

- How do you see the law evolving when represented in code?
- What interests you about the relationship between law and technology?
- What new opportunities for the legal profession AND the general public might the relationship of law and technology enable?
- What is one area of law, in particular, that you think is ripe for innovation?
- Law is a social science. What might developments in social science and computational social science teach us about the future directions of law?

#### Assignment 1

Provide your extended opinion on the discussion questions with a particular emphasis on the potential impacts you see should legal formulations be increasingly represented in code, particularly implications to the legal profession or communication of legal information more broadly.

Please limit your response to ~300-500 words.

#### Note: Final Assignment

At the end of the semester, each of you will be asked to provide either a) a 10 slide pitch deck, b) a prototype, or c) a whitepaper for a computational law application that could be used to transform a specific area of the legal industry.

## Week 2 – Blockchain and Smart Contracts | Party Autonomy/Decentralization

### Readings

- David Chaum, [Blind signatures for untraceable payments](#) (skim)
- Stuart Haber, [Scott Stornetta, How to time-stamp a digital document](#) (skim)
- Satoshi Nakamoto, [Bitcoin: A Peer-to-Peer Electronic Cash System](#) (skim)
- Nelson M. Rosario, [Introduction to Blockchain and Cryptography](#)
- Jeffrey Lipshaw, [The Persistence of Dumb Contracts](#)
- Andrew Hinkes, [The Limits of Code Deference](#)

## Exercise

### Discussion 2

Briefly clarify and contrast the similarities and differences between a legal contract and a smart contract.

In addition to the corporate ventures context, what are some other areas where the concept of "code deference" might be utilized to clarify otherwise confusing aspects of law? What are some limitations of code deference in this new context?

Identify a blockchain project (e.g., company, open source software project, etc.) that has been implemented within the last year and identify the applicable domains of law that will apply to the project.

### Assignment 2

Lexon is a programming language used to write smart contracts. It professes to translate legal prose into useful blockchain code.

- Experiment with Lexon and assess its potential impacts on legal drafting.

## Week 3 – Blockchain, Decentralized Governance, and NFTs: Legal Shifts in Ownership and Identity | Blockchain and Decentralization

### Readings

- Aaron Wright, Primavera de Filippi, [Decentralized Blockchain Technology and the Rise of Lex Cryptographia](#)
- John Clippinger, [Reflexive Mutual Series - LLC](#)
- Vitalik Buterin, [DAOs, DACs, DAs and More: An Incomplete Terminology Guide](#)
- Eduardo Castello Ferrer, et al., [Self-employment for autonomous robots using smart contracts](#)
- Constance Choi, et al., [Model Law for Decentralized Autonomous Organization \(DAOs\)](#) (skim)
- Silke Noa Elrifai, Fatemeh Fannizadeh, et al. [Crypto legal risk checklist](#)

## Exercise

### Discussion 3

What are the biggest strengths and vulnerabilities of DAOs?

Make a copy of the Crypto legal risk checklist and fill it out for a project of your choice. Share the link to your copy of the Crypto legal risk checklist with comment access in the module.

Discuss what might be the risks of conflating these areas and the significance of distinguishing between practical and speculative uses.

### Assignment 3

Recently, the admissibility of blockchain as evidence has been discussed across multiple state jurisdictions.

- In 500 words or less, draft a legal memorandum on how blockchain or other decentralized technologies may serve as valuable electronic evidence.

## Week 4 – Legal AI

### Readings

- Daniel Schwarz et al. [AI Tools for Lawyers: A Practical Guide](#)
- Mohammad Atari et al., [Which Humans?](#)
- Robert Mahari, [AutoLAW: Augmented Legal Reasoning through Legal Precedent Prediction](#)
- "[Guidelines for Use of Generative Artificial Intelligence in the Practice of Law](#)" prepared by a working group of the Committee on Professional Responsibility and Conduct (COPRAC) of the California State Bar
- Jonathan Choi et al., [Lawyering in the Age of Artificial Intelligence](#) (published 11/7/23)
- <https://www.spellbook.legal/>
- <https://www.descrybe.ai/>
- Thibault Schrepel, [Law + Technology](#)

## Exercise

### Discussion 4

Compare and contrast five different legal search terms using an LLM of your choice ([ChatGPT](#), [Bard](#), etc.) and [Descrybe.ai](#) - a publicly available generative AI tool for law. Evaluate the efficacy of each tool you use and summarize the relative strengths and weaknesses of different AIs.

#### Assignment 4

Using [OpenAI's GPT-3 playground](#), train a set of legal clauses and assess the outputs.

- In experimenting with the state-of-the-art NLP tools, provide your extended opinion on the prospects of using NLP and data analytics processes for the legal industry.

## Week 5 – Legal Process Automation

### Readings

- Thomson Reuters, [How legal workflow automation turns thousands of tasks into one](#)
- Juro, [Legal automation in 2024: opportunities, advice and the role of AI](#)
- Explore [Docassemble](#)
- Lucidchart, [What is a flowchart](#)
- M. J. Sergot, et al. [The British Nationality Act as a Logic Program](#)

### Exercise

#### Discussion 5

Outline the steps that would be required to diagram and then automate a legal process (i.e., law or regulation) of your choosing.

Discuss the unique benefits that would occur from the automation of this legal process.

Discuss the costs and challenges that you would face from the automation of this legal process.

#### Assignment 5

TurboTax is occasionally regarded as the poster child of computational law. TurboTax captures the rules of the tax code in logic and allows users to automatically determine whether they are consistent and compliant with the rules.

- Analyze your most recent tax return and assess the process of translation.
- What are some key logical dependencies that would be required to translate from rules to code?

## Week 6 – Hacking & Engineering the Law

### Readings

- Hacking the Law (Radio Show) - [TED Radio Hour](#)
- Check out [Legal Hackers](#)
- Jameson Dempsey, [Overview: A Decentralized Approach to Developing Technology Law and Policy on a Global Scale](#)
- Shayne Longpre, et al. [Data Provenance Explorer](#)
- Andrew Lo, [Can Financial Engineering Cure Cancer?](#)
- Ciara Byrne, [Don't call me a lawyer—I am a "legal engineer"](#)


### Exercise

#### Discussion 6

The concepts of legal hacking and legal engineering represent a change to the legacy conceptualization of what it means to be a lawyer and practice law. At its core, these emerging disciplines represent problem solving issues that are legal in nature via the use of technology.

Identify a case study where legal hacking or engineering has been successfully implemented to address a legal issue? Analyze the approach taken, the technologies used, and the outcomes achieved. What lessons can be learned from this case about the integration of technology in legal practice?

#### Assignment 6

Your final projects are coming up and there will be two parts to each final project. One part of your final project is to create a slide/cover page/README file for your project. The other part is to provide either a) a 10 slide pitch deck, b) a prototype, or c) a whitepaper for a computational law application that could be used to transform a specific area of the legal industry. This week, you will make a copy of the  Quad Chart template and provide a high level overview of your innovation for preliminary feedback.

## Week 7 – Changes to the Legal Profession

### Readings

Caitlin “Cat” Moon, [Delta Model Lawyer: Lawyer Competencies for the Computational Age](#)

### Exercise

#### Discussion 7

A key aspect in communicating new ideas with colleagues, employers, academics, peers, and others is the ability to explain complex ideas in a simple fashion.

1. For this week’s discussion, please provide an “elevator pitch” of the idea you completed in Assignment 6. This pitch should be short, sweet, and to the point - it should clearly articulate who the idea is meant to benefit and why it is transformative.
2. Additionally, write a short summary of how your project utilizes computational law.

#### Assignment 7

Using the learnings from the semester, as well as the tools we have worked with create a list of five jobs that have come out within the last five years with descriptions and speculate about five additional job titles that will emerge in the next five years. For jobs that have come out within the last five years, be sure to include a link to one such posting that currently exists. For the jobs that do not exist yet, be sure to write out which skills would be the most helpful for obtaining one of these jobs in the future. These jobs can be at any level -- from entry level all the way up the ladder to specialist. The important thing to gain from this assignment is an ability to look at the market for emerging jobs and understand which skills might be the most valuable as the industry progresses.

## Week 7.5 – Wrap-Up and Final Presentations

### Final Assignment

We challenge you to craft an enduring and economically viable solution to a problem faced by the American or another legal system using a computational law application.

Pick one of the following three options...

- **Pitch Deck** for a Computational Law venture for commercializing a compelling emerging market opportunity;
- **Demo Prototype** for a Computational Law application; or
- **Whitepaper** outlining the implementation of a Computational Law innovation and analyzing the underlying technology enabling the innovation.