Technology, Data and Computation

Law, Justice, and Development Week 2015

daniel martin katz

edu | illinois tech - chicago kent college of law
corp | LexPredict.com
blog | ComputationalLegalStudies.com
page | DanielMartinKatz.com
application of tools/ideas from computer science and/or computational science would be potentially fruitful in the law
So We Started This ...

March 17, 2009
The visualization above is something we are calling the "six degrees" of Marbury v. Madison. It was originally produced for use in our paper Distance Measures for Dynamic Citation Networks. Due to space considerations, we ended up leaving it on the cutting room floor. However, the visual is designed to highlight the idea of a "sink."

Sinks are one of the core concepts which we outline in Distance Measures for Dynamic Citation Networks, 389 Physica A 4201 (October 1 2010). Looking
three ways to do computation ...
The Three Forms of (Legal) Prediction

experts, crowds & algorithms
what’s true for forecasting is actually true more generally
the world is moving ....
from experts alone
from experts alone
from experts alone

experts, crowds, algorithms (ensembles)
Computational Law
Competing Orientations in Artificial Intelligence

data driven AI

rules based AI
Competing Orientations in Artificial Intelligence + Law

data driven AI

rules based AI
Computational Law

Data Driven
- prediction models and methods
- natural language processing
- visual law
- network analytic methods

Rules Based
- expert systems
- self executing law
- computable codes
How Ideas in Computational Law is helping support new legal infrastructures
The *medieval* lex mercatoria was the product of customs and practices among traders, and could be enforced through the local courts. However, the merchants needed to solve their disputes rapidly, sometimes on the hour, with the least costs and by the most efficient means. Public courts did not provide this. A trial before the courts would delay their business, and that meant losing money. The lex mercatoria provided quick and effective justice.
online *lex mercatoria* (merchant law)
Our Four-step Process

1. Diagnosis
2. Negotiation
3. Mediation
4. Arbitration

60 million customers can't be wrong.

We created and scaled the online dispute resolution systems that eBay and PayPal use to resolve more than 60 million disputes a year. Many of the top dispute resolution firms in the world have chosen Modria as their online solution. Let us create a Modria solution that fits your needs perfectly so that you can get back to doing what you do best: growing your business.
How Ideas in Computational Law are helping reduce complexity through user interface (as well as rules and data)
I would like to share one tool developed at IIT Chicago-Kent College of Law.
IIT Chicago-Kent College of Law has significant work in furtherance of access to justice
used by a variety of legal aid organizations both in U.S. and abroad ...
What is A2J Author?

An online tool from Chicago-Kent & CALI to build graphical interfaces for low-income, self-represented individuals.
A2J Author Gathers Data

Authoring tool in the Cloud

End User A2J Guided Interview
A2J Author “just in time” Learning

“Learn More” bubbles, definition pop-ups, audio, graphic and video capabilities.
Connects to National Server - LawHelpInteractive.org
Completed Documents Delivered to Local Computer
Uses for A2J Author

- Stand-Alone Info Guides
- Benefits
- Eligibility Screen & Calculators
- Triage
- Document Assembly
- Online Intake
- E-Filing
A2J Author 5.0-

Cloud app &
Mobile viewer!
Goal for Version 6.0 of A2J Author
we want to reinvent delivery of legal services using mobile
How Ideas in Computational Law are helping reduce complexity using visualization
3D HD Visualization of Supreme Court Citation Network

Campaign Contributions and Legislative Ecosystems

The United States Code

American Federal Judiciary
http://www.legex.org/
Visual law services are worth a thousand words—and big money
Internet of Legal Things
Embedded Law  Wearable Law
Longer Term Ideas

Embedded Law    Wearable Law

http://www.motorolasolutions.com/promo/publicsafety/connected-law-enforcement-officer.html#product_tour_tab
Longer Term Ideas

Embedded Law

Wearable Law

http://www.openlawlab.com/2013/05/14/legal-jacket-concept/
How Ideas in Computational Law are helping support lower friction / higher trust transactions
we are starting a decade(s) long process of overhauling the global financial infrastructure (also the trust architecture)
it is a massive friction reduction exercise
Blockchain technology, smart contracts and P2P law

Blockchain Technology Will Transform the Practice of Law

June 25, 2015

Editor's Note: The authors of this post are attorneys at Holland & Knight.

By Joe Dewey, Partner, and Shawn Amual, Associate, Holland & Knight

There is no shortage of articles written about the application of blockchain technology to the law. The majority of these articles, however, have focused on either regulatory
**FINANCIAL NEWS**

Thursday, 8 October 2015

**Smart contracts and the self-driving bank**

By Preston Byrne

28 September 2015, Newspaper: Issue967

Special Report: Fintech News: The blockchain issue

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**Dataconomy**

FINANCE · FINTECH

**CRYPTO SECURITIES: LONG BLOCKCHAIN SHORT WALL STREET?**

ARUNKUMAR KRISHNAKUMAR · OCTOBER 8, 2015

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**TechCrunch**

**The Blockchain Might Be The Next Disruptive Technology**

Posted Oct 3, 2015 by Florian Graillot (@FGraillot)
Can Ethereum kill Bitcoin with self-executing contracts?

Ryan Cox | February 12th

Toronto programmer Vitalik Buterin was just a kid and 17 when he started getting involved with Bitcoin. Now 20, he's created a Bitcoin competing cryptocurrency called Ethereum. Bitcoin (and other cryptocurrencies) make it possible to send and receive money outside of the traditional banking system. Well Ethereum wants to take it a step further by making it possible to set up binding contracts outside of the legal system. In addition to its virtual currency called Ether, Ehtereum includes a programming language that makes it possible to encode binding agreements embedded in the same transaction on the ledger.
Imogen Heap shows how smart music contracts work using Ethereum

Musician and technologist Imogen Heap has demonstrated how a song can be released as a digital contract and then shared transparently and completely fairly on a blockchain without the need for intermediaries of any kind.
The promise of the blockchain

The trust machine

The technology behind bitcoin could transform how the economy works

The Economist
EXECUTIVE SUMMARY

bitcoin is probably not that important
but blockchain is important
How Ideas in Computational Law are helping litigants predict legal outcomes
Quantitative Legal Prediction

- or -

How I Learned to Stop Worrying and Start Preparing for the Data Driven Future of the Legal Services Industry

62 Emory L. J. 909 (2013)
Predicting Judicial Decision Making
Since the Court revamped its website, our “scrapers” – computer programs that monitor the Court’s website for changes to the electronic docket and then update our case pages to reflect those changes – are not working properly. We are aware of the problem, and our developers are working on a fix. Until then, if you are looking at a case page for a case that is still pending either on certiorari or the merits, please click on the link to the case’s docket number (in the top left corner of the case page). That will take you to the electronic docket for the case on the Court's website, which is the most up-to-date version. Thank you for your patience.
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Meet Our Team

Mike Bommarito  Chief Executive Officer,

Daniel Martin Katz  Chief Strategy Officer,

Josh Blackman  Director of Judicial Research,
Predicting the Behavior of the Supreme Court of the United States: A General Approach

Daniel Martin Katz¹, Michael J Bommarito II², and Josh Blackman³

algorithms
humans + machines > humans or machines
question is how to assemble such streams for particular problems
law is a field dominated by individual human experts
in most fields - significant quality improvements have been made by moving from experts to ensembles
in part computational law is about helping build those ensembles
using experts, crowds, algorithms
Implications for Predicting Judicial Behavior
Implications for the Rule of Law
Variations from the Predictable
Computational Law

Data Driven
- prediction models and methods
- natural language processing
- visual law
- network analytic methods

Rules Based
- expert systems
- self executing law
- computable codes
A Few Plugs:
we would welcome your submissions
we would welcome your submissions
Daniel Martin Katz

Associate Professor of Law

Professor Katz is a scientist, technologist and law professor who applies an innovative polytechnic approach to teaching law, meshing litigation and transactional knowledge with emerging software and other efficiency-enhancing technologies to help create lawyers for today's challenging legal job market. Both his scholarship and teaching integrate science, technology, engineering, and mathematics.

Professor Katz's forward-thinking ideas helped to earn him acknowledgement in the 2013 Fastcase 50, an award which "recognizes 50 of the smartest, most courageous innovators, techie, visionaries, and leaders in the law." He was also named to the AMERICAN BAR ASSOCIATION JOURNAL's 2013 Class of "Legal Rebels," a prestigious group of change leaders in the legal profession.

Professor Katz teaches Civil Procedure, E-Discovery, and Entrepreneurial Lawyering at Chicago-Kent and spearheads new initiatives to teach law students how to leverage technology and entrepreneurship in their future legal careers. He joined Chicago-Kent in 2015 from Michigan State University College of Law, where he co-founded the ReInvent Law Laboratory, an innovative multi-disciplinary center that focused on the intersection of entrepreneurship, informatics, programming and design thinking to better understand, analyze and design the law.

Professor Katz has published or forthcoming work in a wide variety of academic outlets, including the EMORY LAW JOURNAL, OHIO STATE LAW JOURNAL, IOWA LAW REVIEW, ILLINOIS LAW REVIEW, VIRGINIA TAX REVIEW, and JOURNAL OF THE AMERICAN BAR ASSOCIATION.
Biography

Daniel Martin Katz is an Associate Professor of Law at Illinois Tech – Chicago Kent College and the Director of The Law Lab @ Illinois Tech. His research interests include legal informatics, big data and the law, quantitative finance, lawyer regulation, quantitative modeling of litigation and jurisprudence, law & entrepreneurship, computational legal studies, economics of the legal profession, positive legal theory, technology aided access to justice, legal complexity and the overall impact of information technology, analytics and automation on the market for legal services.

Dan has been named both an ABA Journal Legal Rebel and a member of the Fastcase 50 – an award which "recognizes 50 of the smartest, most courageous innovators, techies, visionaries, and leaders in the law." He is an Editor of the International Journal of Law and Information Technology (Oxford University Press) and a member of the Editorial Board of the Journal of Artificial Intelligence & Law.
EMPOWERING THE FUTURE
OF LEGAL DECISION-MAKING

OUR TEAM

DANIEL MARTIN KATZ  MICHAEL J BOMMARITO II  JOSH BLACKMAN

ABOUT DANIEL MARTIN KATZ

Daniel is a technologist, scientist, and law professor, blending education and thought leadership with empirical analyses of law and society. He is the co-founder of the Reinvent Law Laboratory at Michigan State, author of the MIT School of Law, and editor for a number of academic and industrial journals.

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The visualization above is something we call “six degrees” of Marbury v. Madison. It was originally produced for use in our paper Distance Measures for Dynamic Citation Networks. Due to space considerations, we ended up leaving it on the cutting room floor. 
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Prof. Daniel Martin Katz + Prof. Mike Bommarito II of CLS Blog - Inventing Future of Legal Services Industry = Law+STEM+Design+Entrepreneurship

@ChicagoKentLaw - Chicago, IL
computationallegalstudies.com

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Nicole Auerbach @ValoremNic · Sep 8
It’s been fun to practice law already, but adding Jeff Carr @onedegreelaw will be icing on the Valorem cake!

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You know, if they’re not careful, @ValoremLamb @ValoremNic & @onedegreelaw might make it fun to practice law again. twitter.com/LeanLawStrateg...

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Kevin O'Keefe @kevinokeefe · Sep 8
Excited to speak on innovation & law at the Wyoming Bar Assoc mtg this week w/@LeanLawStrategy, @computational, @valoremnic and others.
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