Coming Soon to A Courtroom Near You: How Artificial Intelligence Will Disrupt the Substance and Process of Law

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What is AI?
- A machine that displays intelligent behavior, such as reasoning, learning and sensory processing.
- AI involves tasks that have historically been limited to humans and intelligent animals, such as decision-making and problem-solving.
- Two types:
  - Narrow AI
  - Artificial General Intelligence (AGI)
A Short History of A.I.

Components of Artificial Intelligence
### AI: Machine Learning

#### Human Computer Programming
- Machine mechanically implements human-made code
- Bad outcomes are attributable to bad code
- Human programmer can explain why machine did what it did

#### Machine Learning
- Humans provide data and specify overall goal for machine
- Machine self-learns and adapts its approach to maximize specified goal
- Limited explanation for why machine did what it did

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### AI Component: Machine Learning

- **How Google's AlphaGo Beat a Go World Champion**
  
  Source: The Atlantic

- **AlphaGo Zero: Google DeepMind supercomputer learns 3,000 years of human knowledge in 40 days**
  
  Source: The Telegraph
AI Component: Speech Recognition

AI Component: Vision

Google’s AI can see through your eyes what doctors can’t.
AI Component: Natural Language Processing

Google's Assistant is getting so smart it can place phone calls and humans think it's real.

Google Assistant sounds so human, no one will know it's making reservations for you.

AI Component: Big Data

Data explosion outpacing technology

Next-generation competitive advantage delivered through:

- Business insight at real-time speeds
- Personalized content that follows you
- Questions that arise automatically from data
AI Can Be in Two Formats

Online – AI as a software program

Robots – AI integrated into a physical “body”

AI Is Already Ubiquitous in Our Lives
“Artificial Intelligence is the New Electricity”
- Andrew Ng
(former Baidu Chief Scientist, Coursera co-founder, and Stanford Adjunct Professor)

AI will impact 100% of jobs, professions, and industries, says IBM's Ginni Rometty
At the Gartner Symposium/ITExpo, Rometty laid out three principles for companies working ethically with AI.
By Alfie D'Amico Registered 11:35 PM PST

AI Problems & Challenges
lack of common sense

Baked Tuna Pa

pastrami, fruits, pork

1/2 hard boiled egg, mayonnaise
1 onion
3 tablespoons butter
5 cup lump, thinly sliced
1/2 cup chicken broth
1 carrot, spinach (vanilla extract wpecans)
1 freshly ground black pepper - optional

Surround with 1-1/2 dozen heavy water by high, and drain & cut into 1/4 in.,
removing the shell.

Pour liquid into then baking pan.

Combine lime juice, lime juice, finely grated cheese and water in
a small saucup and reduce heat. Cover and simmer about 20
minutes at medium high speed and thicken.

Yield: 4 servings

bias

Amazon scraps secret AI recruiting tool that showed bias against women

The tech giant building complex program since 2018 to better screen
applicants and prevent hiring biases. People familiar with the situation
say the tool showed the search for top talent, the people skilled to
the affairs and systems.
transparency

privacy
anthropomorphism

https://www.youtube.com/watch?v=jU-cor12KU
AI and Law: Three Types of Applications

1. Substantive Oversight of AI
2. AI as Evidence
3. AI in the Practice of Law

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1. Substantive Oversight of AI

Question:

When an AI system causes harm, how and to whom do we allocate legal responsibility?
Other (Not So)
Hypothetical Scenarios
Autonomous car mistakes white panel semitrailer for sky; crashes into it and kills passenger

Autonomous Vehicle Liability: Framing Case?

- Why did motorcyclist sue GM when police report said he was at fault?
- Would motorcyclist have sued car or its driver if human-driven vehicle?
- Why did GM settle on terms that plaintiff described as “very satisfactory”? 
A bot released onto social media to provide public service messages inexplicably libels a person.

A military autonomous weapon mistakes a commercial airplane for an attacker and destroys the plane.
Biased algorithm leads to arrest of an innocent person for a crime he did not commit

Incorrect facial recognition led to the arrest of a Michigan man for a crime he did not commit.

Medical AI system accidently gives patient lethal dose of medicine

Incorrect dosage of radiation caused by a machine error.
Government algorithm falsely accuses thousands of citizens receiving government benefits of fraud, resulting in damaged credit, lost jobs and homes, and bankruptcies.

**Government’s Use of Algorithm Serves Up False Fraud Charges**

Using a flawed automated system, Michigan falsely charged thousands with unemployment fraud and took millions from them.

*Visual: * news illustration

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Bots from several different competitors secretly communicate and collude to raise prices and profits.
A “smart” workplace robot unexpectedly reaches over and crushes a human worker’s head.
So who should be liable?

Historically we have held operator of autonomous system liable…..

- Airline auto-pilots
  - Pilot liable

- Motor vehicle cruise control
  - Human driver liable

- Workplace robots
  - Employer liable
But Will a Human Operator of an AI System Really Have the Capability and Duty to Prevent Unexpected Harm?

Small business who uses AI financial software program?

Employer who purchases industrial robots?

Doctor using results from an AI medical scan reader?

Soldier who deploys an autonomous weapon?

Operator of a fully autonomous car?

Maybe the AI Developer/manufacturer Should Be Held Liable?
Mens rea = Guilty mind

Foreseeability
Defective Design

- A defective design is one that is unreasonably dangerous

“the foreseeable risks of harm posed by the product could have been reduced or avoided by the adoption of a reasonable alternative design ..., and the omission of the alternative design renders the product not reasonably safe.”

ROBOT RIGHTS

David J. Gunkel

Can We Hold the Machine Liable?
REPORT

with recommendations to the Commission on Civil Law Rules on Robotics (2015/2100(INI)).

Committee on Legal Affairs

creating a specific legal status for robots in the long run, so that at least the most sophisticated autonomous robots could be established as having the status of electronic persons responsible for making good any damage they may cause, and possibly applying electronic personality to cases where robots make autonomous decisions or otherwise interact with third parties independently;

AI as Evidence
K.W. v. Armstrong

- “Budget Tool”: algorithm used to assess budgets for Medicaid payments
- Allegation: developmentally disabled persons were systematically underpaid by new algorithm
- U.S. District Court conclusion: “patients and the public have a right to transparency of the algorithmic process”. [180 F. Supp. 3d 703 (D. Idaho 2016)]
Questions about algorithm based decision-making:
- Can government agency use proprietary algorithm?
- Who has burden to show if decisions reasonable?
- What if algorithm is machine learning black box?
Forget Police Sketches: Researchers Perfectly Reconstruct Faces by Reading Brainwaves

Picture this: you’re sitting in a police interrogation room, struggling to describe the face of a criminal to a sketch artist. You pause, wrinkling your brow, trying to remember the distance between his eyes and the shape of his nose.

Suddenly, the detective offers you an easier way: would you like to have your brain scanned instead, so that machines can automatically reconstruct the face in your mind’s eye from reading your brain waves?

Brain-Machine Interfaces
deep fakes

The New York Times

Here Come the Fake Videos, Too

Artificial intelligence video tools make it relatively easy to put one person's face on another person's body with the traces of manipulation. What could go wrong?


AI and the Practice of Law
“Artificial intelligence is changing the way lawyers think, the way they do business and the way they interact with clients. Artificial intelligence is more than legal technology. It is the next great hope that will revolutionize the legal profession.... What makes artificial intelligence stand out is the potential for a paradigm shift in how legal work is done.”

Artificial Intelligence is Molding the Attorney of the Future

New applications for cognitive computing are on the horizon to help attorneys address evolving business challenges and make more intelligent, strategic decisions.

Jeff Hartley, Lawtech News
August 9, 2017  |  0 Comments

Credit: Darcy Lito on Unsplash
QUICK SURVEY OF LEGAL AI APPLICATIONS
**Electronic Discovery**

According to academic studies, application of these methods (TAR) has resulted in significant monetary savings and time in locating ESI for disclosure in comparison to manual or “human eyes” review. “Studies have shown that technology-assisted review is at least 50 times more efficient than human-review, or manual, review.”


**TECHNOLOGY-ASSISTED REVIEW (TAR)**

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**Legal Research**

Meet ‘Ross,’ the newly hired legal robot

One of the country’s largest law firms has become the first to publicly announce that it has “hired” a robot lawyer to assist with bankruptcy cases. The robot, called ROSS, has been heralded as “the world’s first entity to indisputably practice.”

ROSS has joined the ranks of law firms Bankruptcy, which employs about 70 human lawyers to handle its bankruptcy practice. The all-human-powered by IBM Watson technology will serve as a legal researcher for the firm. It will be responsible for sifting through thousands of legal documents to handle the firm’s cases.

These legal research jobs are typically filled by fresh out-of-school lawyers with an in-depth understanding of the area.
Case Analytics

Analyze Judges and Courts

Would you like to know how judge Skee will likely respond to a motion to dismiss? Use our Motion Metrics Report to view grant/deny rates. See how a specific judge compares to the national average. Click the hyperlinks in the chart to further explore the underlying motion-order chains. With Lex Machina, you can easily view:

- How likely is a judge to grant or deny a specific motion?
- How long do cases take to get to a grant of a permanent injunction, to trial, or to termination before a judge?
- How likely is a judge to find infringement of a patent, fair use of a trademark, or a Securities Act violation?

Motion Chains surface the relationships between motions, responses, replies, surreplies, and orders; and display order outcomes (grant vs. denied vs. partial grant/deny), time to order, which party filed, and the case.

Timing analytics will help you find answers to these other questions:
- "How long will it take for my Patent case to go to trial before Judge Collins?" This can help with setting your litigation budget.

Billing and Staffing Analytics

LegalVIEW Data Warehouse

- LegalVIEW Market Index
- Licensing
- Rate Driver
- Custom Analytics
- Matter Analyzer
- Dashboard Analytics

Wolters Kluwer ELM Solutions

- Total Spend: $72 Billion
- Total User Days and Workhours: 22,000
- Total Timekeeper: 286,000
- Total Users: 398 Million
- Total Legal Docs: 120 Million

Extracted from Actual Invoices
Permission Based
Case Outcome Prediction

Artificial Lawyer beats human lawyers in CaseCrunch prediction showdown + DATA UPDATES

CaseCrunch

October 28, 2017

Brief Writing/Judge Analytics

Judge Analytics

Understand how judges think, write, and rule.

Judge Dashboard

Specific Language

Litigation Strategy

The Judge Dashboard summarizes your judge's thinking — every decision, every citation, every case, in a single location. The dashboard helps you identify the cases, details, and timing your attorneys need to know.

Uncover the rules and specific language your judge focuses most on to understand how to argue your case. Host specific questions that will help you get your case to the point that you can win your argument.

Make data-driven decisions about everything from how to frame arguments to whether to take a particular line of reasoning that can make or break a case.
Jury Screening

Voltaire Uses AI and Big Data to Help Pick Your Jury

Legal AI company Voltaire has launched an application that will allow lawyers and litigation consultants to rapidly analyze potential jurors by crunching public Big Data, including social media posts.
In Big Law Firm First, O’Melveny To Use Neuroscience And AI To Recruit Associates Hiring Based On Cognitive And Emotional Traits Rather Than Pedigree

By Paul Caron

Bloomberg Law, O’Melveny Could Set Trend With Law Student Cognitive Testing:

O’Melveny & Myers will ask law students interested in joining the firm to play computer games designed to test their cognitive skills while rooting out hiring biases, an approach that may signal a new industry recruitment trend.

Starting in January, first-year law students can opt to play the series of 12 games, which take about 30 minutes to complete in total, to boost their applications for a job at the firm. The software behind the games makes use of artificial intelligence and a customized algorithm to analyze talent in a highly competitive market for the best and brightest candidates.

These cognitive assessment tools are common in corporate hiring, but law firms often rely on more traditional methods. Cognitive skills tests like O’Melveny’s, which appears to be the first of its kind used in Big Law, aim to eliminate bias and encourage candidate diversity, but are also known to have limitations.

Based on their results, pymetrics will build a so-called “success profile” against which law students can be measured. The software company will then audit the algorithm in order to remove potential gender, racial or ethnic biases in the underlying data.

Legal Chat Bots

BiggerLawFirm.com
AI and the Court Systems: Some Examples

- Automatic scanning and docketing of court filings
- Facial recognition log-in to court computer systems
- Chatbots for public inquiries
- Juror hotline
- Identify “red flags” in guardianship/conservatorship cases
- Triage cases for automated case management

Source: NCSC

Online Dispute Resolution
Q: “Can you foresee a day, when smart machines, driven with artificial intelligences, will assist with courtroom fact-finding or, more controversially even, judicial decision-making?”

C.J. Roberts: “It’s a day that’s here, and it’s putting a significant strain on how the judiciary goes about doing things.”

NY Times, May 1, 2017
AI-powered court opened in Hangzhou in 2017 and has handled more than 3 million case; human judge in the loop although most of proceedings handled by AI system.

Beijing Internet Court has decided tens of thousand of cases since 2018.

The judges that "appear" by hologram are artificial creations—there is no actual judge sitting in a courtroom whose image is beamed to a mobile device. The hologram-judge looks like a real person but is in fact a synthesized, 3D image of different judges, sort of like the “Mash Up” toys that combine parts of different superheroes. Instead of engaging in child’s play, though, this hologram-judge sets schedules, asks litigants questions, takes evidence, and issues dispositive rulings.

**Legal robots deployed in China to help decide thousands of cases**

**The Holographic Judge**

By Katherine B. Forrest | December 30, 2019

New York Law Journal
PRACTICAL CONSIDERATIONS FOR ATTORNEYS
On the Positive Side…

- “AI presents a myriad of opportunities for firms that are willing to work with it….There are many areas where clients would be willing to spend more money if they could see the added value. For example, a client organization could give all of its contract reviewing to a firm that could handle it quickly, accurately efficiently.” 
  (Robots in Law)

- Many companies and individuals cannot afford needed legal services; if AI allows firms to deliver legal services more efficiently, more client may be able to afford to engage law firms

Moreover…

“AI and the technologies it enables such as robotics, blockchain, Medtech, Edtech, and FinTech will drive the reinvention of existing sectors from media, healthcare, education, and transport to retail, construction, and financial services. AI is already enabling the next wave of trillion dollar sectors and developments such as autonomous vehicles, DAOs, synthetic biology, smart materials, intelligent cities, blockchain data networks, and smart contracts... All these developments will require the interpretation, reframing and redrafting of legal frameworks and the creation of new legal concepts and dispute resolution mechanisms …” -- Rohit Talwar
Selection of AI Vendors

- To date, AI vendors focus on specific task – no across-the-board legal AI system (yet)
- Law firms may need/want to use several different vendors for different AI tasks
- Likely to be major shake-out of vendors in relatively near future (as has been seen with e-discovery)
- Nature of machine learning is that it takes time for AI system to be trained on and learn a firm’s data and operations – would be highly disadvantageous to have start again if vendor goes out of business

Advantage to Early Adopters?

- “Unlike other game changers, such as mobile, where fast followers have benefitted from the lessons learned by early adopters, AI is one of those technologies where it pays to be a first mover – because machine learning means that the system is continually improving as it learns from every matter and transaction. This means that early adopters’ systems will be better trained than those of their competitors.”
  
  Joanna Goodman, Robots in Law (2016)
Timing Issues for Law Firms in Adoption of AI

- **Go Fast:**
  - FOMO - fear of missing out
  - May be increasing hard to compete with a competing law firm using AI
  - AI systems are self-learning – the earlier you start adapting AI system to your practice and standards, the more advanced and bespoke it will be at any point in the future

- **Go Slow:**
  - AI offerings today are in early stages and will rapidly improve in next few years
  - “Winners” in AI tech still to be determined
  - Patchwork of applications right now
  - AI systems take a lot of time and resources to configure and integrate with practice areas

AI and Legal Malpractice Risks

- Attorneys will be responsible for AI system’s mistakes, even though attorneys cannot fully understand or check what AI system does
- Will AI increase law firm liability risk?
  - Most early adopters have reported that improved quality is bigger benefit than increased efficiency
  - Will it be malpractice not to use AI?
AI and New Legal Ethics Challenges

- Attorney A in Law Firm K trains and uses AI system on data from Client X
- Question: Who owns the data-trained system – firm, vendor or client?
  - Can law firm K use this AI system trained with client X with a new matter for client Y?
  - If yes, how does firm K bill client Y?
  - Can client X ask firm K to share AI system with firm L representing X on another matter?
  - If attorney A moves to law firm L, can he take the trained AI system with him? Does it matter if she continues to represent client X?

Disruption of Law Firm Value Chain?

- If AI can do in a few seconds the work of an associate that now takes a couple weeks, how will this affect:
  - Law firm billings?
  - Continued use of billable hour?
  - Partner/associate leverage?
  - How should firms charge for an AI system they have trained?
- Will AI shift legal markets by favoring:
  - Large firms over small/medium firms?
  - In-house over law firms?
Impacts on Young Attorneys

- The functions best done by AI will displace much of the work done by young associates at law firms
  - e.g., document review, legal research
- Some large companies have already informed their law firms that they will no longer pay for the work billed by 1\textsuperscript{st} year associates
- Natural response of law firms will be to hire fewer entry level attorneys
- How will this affect professional pipeline and training for future lawyers?
Why Hire a Lawyer? Computers Are Cheaper

By JOE PALAZZOLO

When the roofs of three jet hangars in Virginia collapsed under heavy snow and crushed a private jet in 2008, the owner of the hangars prepared for the inevitable lawsuits. Landau Aviation preserved about 8,000 gigabytes—the equivalent of about eight new desktop computers filled

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Machine Learning Saves JPMorgan Chase
360,000 Hours of Legal Work

By Casey C. Sullivan, Esq. on March 8, 2017 10:11 AM

Here's a sobering fact for lawyers: Last year, a machine learning program used by JPMorgan Chase saved the company 360,000 hours of work, work that would normally be performed by lawyers and loan officers.

That's more than 41 years worth of nonstop legal work — all handled in a few seconds, by some well-designed software.

"A New Era of Automation"
So Who Will Win – Humans or Machines?

Human Lawyers?
Machine Lawyers?

Correct Answer?
Conclusion: AI and the Practice of Law

“Good News”
- Adoption of AI in practice of law will be evolutionary, not revolutionary
- Most lawyer functions will not be performed by AI in foreseeable future
- Adoption of AI offers opportunity to be leader in efficiency, cost savings, accuracy

“Bad News”
- AI will take over a steadily increasing share of law firm billable hours
- AI will require knowledge/abilities outside the existing skill set of most current practicing attorneys
- Incorporation of AI into practice will soon be a matter of keeping up rather than being a leader
“AI is a tool. A tool that we control. It is a tool that can make us more effective and efficient at what we do. It is a tool that can help us deliver our services more quickly and at lower cost. It is a tool that can help us serve more clients and serve them better. It is a tool that can enhance the delivery of legal services and that can help to close the yawning justice gap. It is a tool for good, not for evil. In fact, the dirty little secret of AI is that it can make us even better lawyers than we are without it.”

One thing is becoming clear: lawyers who use artificial intelligence will replace lawyers who don’t.

Sources: AboveTheLaw.com; lawsitesblog.com
And Finally …. 

Don’t be afraid …
  ... we humans are still in control
  .... for at least a while yet.

https://www.youtube.com/watch?v=VqwL7Gnxii0