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# The Nexus Between Artificial Intelligence and the Law

## 2019 Judicial Summer Series

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# Overview

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- **Artificial Intelligence (“AI”) in use today**
- **Relevance to both criminal/civil legal issues**
- **Use growing exponentially**
- **Raises practical as well as theoretical issues**
  - Practical:
    - (1) How is it being used?
    - (2) In criminal proceedings, does AI usage raise search and seizure, due process, or confrontation clause issues?
    - (3) AI enabling new and different crimes
      - How is responsibility allocated?
    - (4) In civil proceedings, how is it coming up?
      - Does it create new liability issues or eliminate issues?
      - Use of algorithms resulting in bias questions
    - (5) Privacy issues
  - Theoretical:
    - (1) Do humans add something unique that we do not want to lose in investigating, litigating and judging?
    - (2) Can AI be programmed to understand the concepts of “fairness” and “justice”?

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# AI Utilization

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- **In 2019: Actual utilization**

- Criminal justice system
  - Law enforcement:
    - Patrolling
    - Monitoring (behavior/object detection)
  - Investigation:
    - Evidence repositories
    - Predictive profiling
    - DNA identification
    - Pattern analysis (e.g., to identify/understand complex financial transactions/money laundering)
    - Voice/facial/gait recognition
    - Document review
  - Pre-trial release, sentencing and incarceration:
    - Predictions of compliance with release conditions
    - Predictions of recidivism
    - Penal housing determinations

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# AI Utilization (cont.)

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- **In 2019: Actual utilization**

- Civil
  - Torts
  - Intellectual Property:
    - Patent
    - Copyright
    - Trademark
  - Financial services:
    - Credit analysis
    - Lending
    - Trading (tax/RICO)
  - Employment:
    - Application sorting
    - Hiring
    - “Efficiency” transfers
    - Termination
  - §1983:
    - False arrest
    - False identification

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# Defining AI

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- **Why AI now?**

- Increases in computational power
- Availability of enormous data sets

- **“Teaching” AI to think**

- Machine learning (large data sets)
- Neural networks

- **Narrow AI**

- Device/single purpose

- **General AI**

- Broad usage

- **AI: not just “robots”**

- Software
- Not necessarily in a single device
- May not “see it” at all/inside a computer

- **Local or distributed**

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# Defining AI (cont.)

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- **AI: machines that learn**

- Able to exceed initial programming/to go beyond what humans taught them
- Able to make rational, reasonable decisions
  - Decisions not based on emotions/bias

- **Artificial General Intelligence**

- “Singularity”

- **Apart from the initial act of creation and goal setting, human involvement is unnecessary**

- **What AI is not:**

- **Not** simply a computer program instructed to accomplish a discrete task
- Not just “hi-tech” or sophisticated software

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# AI is Already in Use

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- **AI is no longer the stuff of science fiction**
- **Deployed within the U.S., but far more use in certain parts of the world**
- **Example: China**
  - Law enforcement:
    - Use of facial recognition technology primarily for racial profiling/law enforcement purposes
      - Authorities using massive system of facial/voice/gait recognition technology to identify, track and control ethnic minorities
      - Across multiple provinces, regions
    - Use of AI by governments
  - “City Brain”:
    - Chinese company Alibaba created the “City Brain” and deployed it in city of Hangzhou
    - Uses AI to gather information, analyzes data in real time
      - Videos of roads
      - Live GPS data of vehicles
    - Uses:
      - Traffic rationalization
    - Government monitoring
  - “Social Credit” System:
    - Local governments using AI to track citizens’ behavior

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# AI in U.S. Today

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## ▪ Ubiquitous in U.S. today

- Law enforcement
- Manufacturing: the Industrial Internet of Things
- Military
- Browser searching
- Smartphones
  - Siri
  - Google Translate
  - Curated news feeds
- Home devices: Amazon Echo (Alexa), Google Home, NEST
- Entertainment
  - Netflix, Pandora Radio
- Inventory stockers
- Customer service representatives
- Medical diagnostics
- Surgical robotics
- Virtual reality/stroke rehab.
- Telepresence
- Financial analysis: lending (tax audit candidates)
- Social Security Administration/benefit analysis
- Advertising
- Code writing/music creation/news article drafting



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# AI: More on Horizon

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- **More on the near-term horizon**

- Advanced medical analytics
- Further replacement of “repetitive” jobs
- Hospitality: check in/concierge replacement, cleaning staff
- Advertising: further replacement
- Self-driving cars, buses, trains
- “Flying” taxis
- Automated delivery services
- Certain legal services (drafting documents, researching, reviewing materials)
- Fast-food restaurants (self-ordering machines/cooks/inventory)
- Volumetric telepresence
- Enhanced virtual reality environments
- Replacement of 25-40% of jobs within 15 years (Brookings Inst.)
  - Significant workplace disruption
  - Disproportionate impact on lower paid/lower skilled workers

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# Criminal Justice Context

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- **New crimes enabled by AI:**

- Cyber attacks
- Identity theft
- Credit card fraud
- Money laundering schemes
- Drug acquisition, distribution
- Harassment

- **AI currently used in the criminal justice area:**

- Law enforcement
  - Predictive policing
  - Autonomous policing
  - Behavior detection/shoplifting
  - Identification of objects (stolen vehicles)
  - Crowd monitoring
  - Area monitoring

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# Criminal Justice Context (cont.)

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- **Devices as evidence repositories**

- Amazon Echo, Siri
- Data resident within other home devices
- Voice recognition and interpretation
- Predictive capabilities

- **Investigations**

- Tools for identification (facial/voice recognition; DNA)

- **Use in pre-trial release/sentencing proceedings**

- Predictions of compliance with release terms
- Predictions of recidivism
- Penal housing determinations

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# Criminal Justice Context (cont.)

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## ▪ Evidentiary questions

- How much insight does/should courts/parties have into software underlying AI
- Tests of accuracy?
- Bias
- Tensions between due process/reliability issues and intellectual property rights

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# Criminal Justice: General Issues

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## ▪ **AI vs. humans**

- AI as repository of “facts”
- “Facts” = “truth”?
- AI as a witness? AI as “truth teller”
  - Same evidence
  - Higher potential degree of accuracy: factual “truth”
  - Absence of personal motivations

## ▪ **Issues:**

- AI has human birth parents (created by humans)
- Humans determine algorithm inputs and weights
- Human actions underlying current data sets, which AI accesses
- Humans determine goals, objectives
- Human biases: built in?

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# Challenging Concepts of Justice

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- **Can AI mimic human-type justice?**

- Should it?
- What “philosophy of punishment” does AI have?
  - Incapacitation?
  - Retribution?
  - Rehabilitation?
  - Mitigating factors?
- Is justice “objective”? Will/should AI view justice and fairness as the same thing?
- AI’s use in sentencing implicates theories of justice/fairness
- Can AI understand changing human notions of justice
  - Learn
  - Predict
- Why would a machine necessarily have the same notions of right and wrong?

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# Criminal Justice: General Issues (cont.)

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## ▪ Precedent evolving

- Public/private balance
- Human choices: AI has initial programming
  - Whether a machine “listens”, how long, for what
  - Whether it records
  - What it deems a pattern – and how it interprets typicality
    - Two instances as random or two instances as a pattern?
  - Whether the algorithm produces accurate output/answers

## ▪ How do we test all of this?

- Accuracy
- Reliability
- Need information on design, data sets
- Balance between proprietary rights and due process

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# Investigations: Identification

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- **Profiling/DNA identification**

- Access to broad databases
- Increased chances of positive identification
- Decreased chances of error rate (?)

- **Issues with biased data sets?**

- Historical data sets

- **Biased/unfair “array”?**

- **How to handle “array” challenges when the sample set is vast?**



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# Investigation: Pattern Analysis

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- **Document review/financial pattern recognition**

- Reduction in human reviewers
- Reduction in error rate (?)
- Predictive results
  - Based on context
  - Based on perceived patterns
- Evidentiary issues
  - Allow into evidence: “machine found patterns”?
  - Too suggestive of “correct” answer?

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# Investigation: Voice/Facial Recognition

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- **How used?**
  - Voice recordings
  - Photographs
  - Large databases
  
- **In use (e.g., China)**
  
- **Recognition beyond what humans can do**
  - Face in crowd
  - Voice separated from cacophony
  - Traditional concepts of “fairness”?
  
- **Evidentiary issues:**
  - Allow into evidence: “machine identified it”
  - Would this be too suggestive of “correct” answer?

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# Investigations: 4<sup>th</sup> Am. Issues for Home AI?

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- **Expectation of privacy (?)**
- **Particular search/seizure concerns (?)**
  - Smart devices collect/store information
  - Information can be used for:
    - Location monitoring: where you are or have been
    - Appointments: whether they are made and kept
    - Browsing and purchasing history: not only what you actually bought, but what you viewed/wanted, what you decided not to purchase
    - Recollection, prediction, contextualization
    - Pattern recognition and variations
    - Voice interpretations: emotion, stress, anxiety
- **Judicially authorized search warrants: would they alleviate concerns?**
- **Increased capabilities of these devices in the coming years will present new and complex challenges and concerns**

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# Criminal Investigations: Home AI

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## ▪ Evidence repositories

- What's on these devices anyway?
- Who has access to cameras/recordings for face/voice/gait recognition?
  - Governmental entities
  - Use of home computer cameras
- Who controls what's recorded/stored?
  - Duration
- Who can access it?
- Third parties listening to Alexa/Alexa listening to you
  - "Hearing" a crime
- Is data on these devices really any different from data resident on a cellphone?  
(e.g., text or documents within the home)

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# Investigations: 4<sup>th</sup> Am. Issues for Home AI (cont.)

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## ▪ Useful case law already exists

- Robust body of case law regarding the **search and seizure** of cell phones (Riley)
  - Emails
  - Texts
  - Voicemails
- Big question: are these home devices/Alexas different?
  - Similar to an interactive storage device
  - Cell phones can do what Alexas can do

## ▪ Recent cases:

- Two relatively recent cases
  - 2017: Amazon Echo device in home of murder suspect; sought by law enforcement
    - Amazon opposed production
    - Ultimately, the suspect agreed to turn over (Amazon withdrew its objection)
  - 2018: Double murder case; similar information sought
- Reasonable expectation of privacy
- Warrant typically may be needed; but with judicially authorized warrant (or voluntary disclosure) accessible

## ▪ In sum: 4<sup>th</sup> Amendment has not prevented access

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# Legal Proceedings: 5<sup>th</sup> Amendment

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- **AI's use in criminal proceedings**
- **5<sup>th</sup> Amendment:**
  - Due Process
  - Self incrimination
- **Does required (versus voluntary) production of (Alexa's) recordings of voice commands violate protections against self incrimination?**
  - Testimonial?
- **Implications of AI in criminal proceedings today**
  - Proprietary software
    - Predictions of danger
    - Predictions of recidivism
    - Predictions of effective terms for supervision
- **Insight into algorithms and data sets: Due Process**

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# Criminal Justice: Sentencing/Incarceration

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- **Utilization in connection with sentencing**
- **Predictions of recidivism**
- **Loomis case**
  - Defendant fled from a police officer/auto theft
  - Split sentence
  - Risk assessment tool used in arriving at period of incarceration
  - Proprietary software: “COMPAS”
  - Predictive software
  - Defendant not allowed access to underlying algorithm/data
  - Due Process challenge
- **Wisconsin’s highest court**
  - No Due Process violation (I would disagree)
  - Court referred to study of results by New York State’s Division of Criminal Justice Service
    - “Satisfactory results”
  - No insight into choices by humans of weighing of race/other characteristics
- **Penal housing determinations**
  - Behavioral predictions

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# Criminal Justice: 6<sup>th</sup> Amendment

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- **Do witnesses need to be human?**
- **AI witnesses: more accurate repository of information**
  - Better memory
  - More likely to be a “truth teller”?
  - Less likely to mis-remember/lie?
  - Less bias?
- **AI advancing: towards testimonial functionality**
  - AI may soon have testimonial capabilities beyond human percipient witnesses
- **AI as “expert” witness**
  - Example: trajectory of bullets have allowed for shooter to be in “X” location
  - Is it more likely that A shot B first?
- **Confrontation Clause issues?**
  - Right to confront AI
  - What does “confronting AI” mean?



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# Criminal Justice: 6<sup>th</sup> Amendment (cont.)

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- **Key Confrontation Clause issue:**

- Can AI be cross-examined?
  - Yes, it can be queried
  - Less prone towards confusion, bullying

- **What is the real purpose of cross examination?**

- Attempt to test veracity/accuracy of testimony
- Attempt to test credibility
- Attempt to reveal bias
- Capability for this: on the horizon
- AI will be able to provide the basis for answers
  - Opinions will be able to be explored

- **Who wins? Who loses?**

- Do we lose or win if AI is a witness?
- What is special about a human witness?
- Do the qualities that make a human witness “special” add to truth telling?
  - Sympathy garnering?
  - Or other emotional impact?
- Don't we want the fact finder to make decisions based on **facts** not **emotions**?

- **Ongoing role for skilled cross examination**

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# Civil: Intellectual Property

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- **Patent/copyright/trademark areas**
- **Questions of agency in both**
  - “Who” is the actor
- **Protecting AI as an invention (patent), AI’s works (copyright)**
- **Protecting avatars/virtual reality environments (trademark?)**
- **IP claims**
  - Infringement (direct/contributory)
  - Not patentable (Alice, §101 challenges)
  - Markmans

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# Civil: Intellectual Property – Patent

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- **Used today to make creative works**

- Music
- Books
- Art

- **Agency**

- Authorship
- Ownership
- Distributed environment

- **Authorship and ownership**

- Who authors and who owns machine-created works?
  - What is the “origin” of a machine’s idea?
  - Who is legally responsible for a machine’s infringement of the property rights of a human?
- Under current law, for a work to be copyrightable, it must be created by a human
- Work-for-hire doctrine

- **Use of large data sets**

- Copyrightable?
- Infringement claims

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# Civil: Intellectual Property – Patent

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- **Thousands of patents**

- Challenges on the horizon

- **Alice/§101 issues**

- AI's use of algorithms
- Algorithms protected?
- Protection of data sets

- **Markman Hearings**

- **Broad language**

- Industry standards (?)

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# Civil: Tort Issues

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- **General: how to determine responsible actor**
  - Allocation of responsibility
  
- **Medical malpractice claims**
  - Increasing use in healthcare diagnostics
    - Diagnostics generally
    - Radiology
    - Use in rehab.
  
- **Reduction in human error (?)**
  - Reduction in intuition?
  - E.g., “unusual tumors”?
  
- **Delivery of healthcare**
  - Dispensing medications
  - Nursing
  - Surgery
  - Implants
  
- **Automated machines (cars, delivery mechanisms, manufacturing)**
  - Liability issues: responsibility with [manufacturer] [technology company]

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# Civil: Privacy Claims

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- **Use of data**

- **Targeting**

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# Civil: Algorithms

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## ▪ Use of data sets

- Based on historical bias
- Entrenching bias?

## ▪ Inputs/weightings of algorithms

- Who chooses

## ▪ Transparency/accountability

- Making accessible to “mere mortals”

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# Civil: §1983 Claims

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- **Use of algorithms to predict behavior/identity**

- **§1983: Claims re unlawful state action**

- False identification
- False arrest
- Unreasonable state action

- **Division of responsibilities**

- Data set at fault?
- Algorithm at fault?
- Police officer able to check/accountability

- **Qualified immunity (?)**



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# Civil: Employment

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- **AI assisting with HR process, also taking over certain jobs**
  
- **Union issues**
  - Automation/job elimination
  - AI has already changed manufacturing
  - Other fields are next
  
- **Hiring issues: used to find “appropriate” candidates, weed out others**
  - Algorithms/human inputs and weights
  - Databases/historical
  - Status issues: race, age, gender, disability
  
- **AI as a product of human creation**
  
- **Automated efficiency analysis: transfers, job changes, job elimination**
  - Based on data from operations plus data from employers
  - Discrimination claims
  
- **Automated firing/termination**
  - Human role remains
  - Suggested efficiencies
  - Human empathy vs. machine vs. stockholders