

1 **The Nexus Between Artificial Intelligence and the Law** **2019 Judicial Summer Series**

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2 **Overview**

- 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”?

3 **AI Utilization**

- 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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4 **AI Utilization (cont.)**

- 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

5 **Defining AI**

- 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

6 **Defining AI (cont.)**

- 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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7 AI is Already in Use

- 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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8 AI in U.S. Today

- 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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9 **AI: More on Horizon**

- 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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10 **Criminal Justice Context**

- 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

11 **Criminal Justice Context (cont.)**

- 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

12 **Criminal Justice Context (cont.)**

- 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

13 **Criminal Justice: General Issues**

- 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?

14 **Challenging Concepts of Justice**

- 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?

15 **Criminal Justice: General Issues (cont.)**

- 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

16 **Investigations: Identification**

- 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?

17 **Investigation: Pattern Analysis**

- 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?

18 **Investigation: Voice/Facial Recognition**

- 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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19 **Investigations: 4th Am. Issues for Home AI?**

- 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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20 **Criminal Investigations: Home AI**

- 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)

21 Investigations: 4th Am. Issues for Home AI (cont.)

- 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: 4th Amendment has not prevented access

22 Legal Proceedings: 5th Amendment

- AI's use in criminal proceedings
- 5th 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

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- Insight into algorithms and data sets: Due Process
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23 **Criminal Justice: Sentencing/Incarceration**

- 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

24 **Criminal Justice: 6th Amendment**

- 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?

25 **Criminal Justice: 6th Amendment (cont.)**

- 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

26 **Civil: Intellectual Property**

- 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

27 **Civil: Intellectual Property – Patent**

- 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

28 **Civil: Intellectual Property – Patent**

- Thousands of patents

- Challenges on the horizon
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- Alice/§101 issues
 - AI's use of algorithms
 - Algorithms protected?
 - Protection of data sets
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- Markman Hearings
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- Broad language
 - Industry standards (?)

29 **Civil: Tort Issues**

- 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]

30 **Civil: Privacy Claims**

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- Use of data
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- Targeting
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31 **Civil: Algorithms**

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- Use of data sets
 - Based on historical bias
 - Entrenching bias?

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- Inputs/weightings of algorithms
 - Who chooses
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- Transparency/accountability
 - Making accessible to “mere mortals”

32 **Civil: §1983 Claims**

- Use of algorithms to predict behavior/identity
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 - §1983: Claims re unlawful state action
 - False identification
 - False arrest
 - Unreasonable state action
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 - Division of responsibilities
 - Data set at fault?
 - Algorithm at fault?
 - Police officer able to check/accountability
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 - Qualified immunity (?)

33 **Civil: Employment**

- 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
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