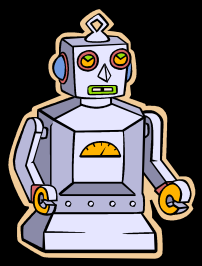
"Danger, Will Robinson!"
A Discussion of Cutting Edge Issues in AI and Robotics Law

Presented by:
American Bar Association
Science & Technology Section
Artificial Intelligence & Robotics Committee
K. Krasnow Waterman & Matthew Henshon, Co-Chairs
May 13, 2008



About the AI&R Committee

New in the fall of 2007, the Artificial Intelligence and Robotics Committee will address all aspects of law and devices that replicate or appear to replicate human mental or physical activity - learning, reasoning, communicating, manipulating objects, etc. Activity will be divided into two broad topic categories. The first, use in legal activities, will address advances such as automated contract drafting and interpretation, compliance monitoring, and even law enforcement. The second will track changes in statute, regulation, and case law about, or which specifically affect parties engaged in, artificial intelligence and robotics. As technology advances, the committee will address the challenges posed by ever smarter and more-dexterous machines that can out-perform humans.

This committee will provide invaluable assistance to those advising technology companies, incorporating new technologies into their practice, lawyers in technology roles, technologists building legal tools, cross-disciplinary professors, and those who just want to be ahead of the curve. The Committee offers a listserv, on-line resources, and this teleconference. Soon it will offer on-line publications and topic-specific working groups.

Committee co-chairs are K. Krasnow Waterman and Matthew Henshon.

Introduction

- Panel
  - K. Krasnow Waterman
  - Ed Olson
  - Matt Henshon

Agenda

- Introduction (Waterman)
  - About the committee
  - About the panel
  - Today's program
- DARPA Grand Challenge (Olsen)
- Legal issues (Olsen/Henshon/Waterman)
  - Machine control
  - Performance Standards
  - Shared Control
  - Privacy
- Next Steps (Waterman)
- Q&A (Audience & Panel)

ABA Section of Science & Technology Law
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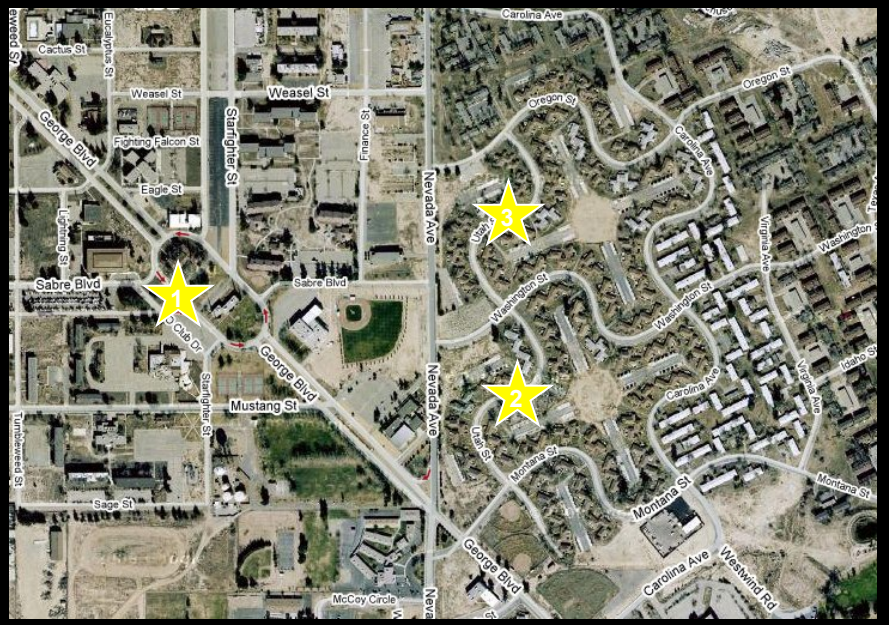
DARPA Urban Challenge

- Motivation
  - 40,000 traffic deaths in US annually
  - Military applications (convoys)



- Robots are completely autonomous
  - *Not* tele-operated

DARPA Urban Challenge

- 2004: Grand Challenge 1
  - Off-road terrain, GPS following
  - *Zero teams finish (7.4 / 150 miles)*

- 2005: Grand Challenge 2
  - Off-road terrain, GPS following
  - *Five teams finished (132 miles).*

- 2007: Grand Challenge 3
  - Urban. Moving obstacles. Dynamic route planning. Intersections.
  - *Six teams finish (60 miles).*
  - *MIT 4th place*

ABA SECTION OF SCIENCE & TECHNOLOGY LAW
Artificial Intelligence & Robotics Committee & Friends

DARPA Urban Challenge

Perceive Environment

Drive safely!

Q1. Auto-Pilots

- Q: What are the current practices with regard to currently deployed auto-pilot systems?

Liquid Natural Gas Tanker

Boeing 787 Dreamliner

Autopilot cases

- Autopilot cases:
  - what are the underlying facts (i.e., an airplane crash)
- N.Y. Times (9/30/2007):
  - 1 fatal accident for every 4.5 million U.S. departures (down from 1 in 2 million in 1997)
  - 7 crashes (as of 9/30) in 2007 that killed more than 20 worldwide
  - Most are takeoff/landings; current fear is runway-collisions

Autopilot 2

- Korean Air Lines Flight 007
  - a.k.a. KAL 007
  - Cold War flashpoint
  - KAL "strayed off course" en route from NYC (via Anchorage, Alaska) to Seoul, shot down on Sept 1, 1983
  - Loss of 269 lives

- Actually two reported decisions:
  - In re Korean Air Lines Disaster of September 1, 1983 (932 F.2d 1475 (D.C. Cir., 1991) *cert. denied 112 S. Ct. 616 (1991)*) (Affirming jury finding of "willful misconduct" and vacating punitive damage awards)
  - Split opinion: Mikva/Buckley
  - In re Korean Air Lines Disaster of September 1, 1983 (156 F.R.D. 18; 1994 U.S. District LEXIS 10123)

Autopilot 3

- In re KAL 007 II (1994)
  - "Black Box" recorder 'found' between time of jury trial/KAL I (1991)
  - Question before US Dist. Court (DC): Rule 60 (Vacate Judgment/Grant New Trial)
  - In effect, a re-appeal at the trial court level
  - (42 federal actions consolidated in DC)
  - If no "willful misconduct", then limited by Warsaw Convention to $75,000 per person damages

Autopilot 4

- In re KAL II (1994) (continued)
  - 1993 Report: "corroborates one of the theories offered by Plaintiffs during liability trial…007's course deviation resulted from the maintenance of a constant magnetic heading."
  - Blackbox showed: The constant magnetic heading, given its accuracy, occurred because Flight 007 was being controlled by autopilot.
  - *"The use of the constant magnetic heading and the ensuing course deviation was due to the failure of Flight 007's crew to recognize that the autopilot had either been left in heading mode or had been switched to INS [inertial navigation system] after the plane was outside of the range for the INS to capture the desired course."* [emphasis added]
  - In addition, the 1993 ICAO Report concluded that there were no malfunctions of Flight 007's INS, or of any of the aircraft's systems.
  - ICAO report confirmed that crew should have been aware heading was off course, deviation not observed for five hours.
  - "Given the crew's knowledge of the grave danger of being fired upon in Soviet airspace, and the length and severity of the flight's deviation from its course, the crew's failure to follow mandated navigational procedures and it's 'lack of situational awareness' in this Court's view, amounts to willful misconduct."

Autopilot 5

- KAL II court: Crew had duty to monitor autopilot
- Five hours with no monitoring = willful misconduct

Autopilot 6

- Beverly Richardson v. Bombardier, 2005 U.S. Dist. LEXIS 30025 (U.S.D.C., M.D.Fla.)
  - One of the few "reported" malfunctioning autopilot cases
  - Plaintiff's Motion for New Trial after jury finding for defendants on negligence claim for alleged defect in autopilot system on airplane and related strict liability (by seller to US Army)
  - "About one hour into the flight, while the [C-23B+ Army National Guard] plane maneuvered around adverse weather conditions, Warrant Officer Larsen left the cockpit and proceeded to the lavatory in the rear of the airplane. The airplane was cruising on autopilot at 9,000 feet, with its elevator at the level-flight equilibrium point of approximately-6-degrees. **About 50 seconds after Larsen left the cockpit, the airplane encountered a wind shear that caused it to pitch upward and gain altitude. In response to that movement, the autopilot lowered the elevator's deflection angle to lower the airplane's nose.** However instead of resuming level flight, the airplane went into a precipitous dive…[and the plane] broke apart and crashed." [Emphasis added]
  - Location of "center of gravity" of plane at issue: "[Center of Gravity] was aft of maximum design limit."
  - Autopilot design

Autopilot 7

- Barber v. U.S. (1984 U.S. Dist. LEXIS 16855)
  - "Both a pilot and an air traffic controller are held to a standard of due care for the safe conduct of aircraft and for the safety of airplane passengers," citing U.S., v. Miller, 587 F.2d 991 (9th Cir. 1978).
  - "Barber [the pilot], was not free from fault. He violated 14 C.F.R. Sec. 135.73 and 135.75 when he operated the aircraft under instrument flight rules without either a co-pilot or an autopilot, and he also violated 14 C.F.R. Sec 91.75 when he deviated from the clearance given him by the…tower and when he failed either to obtain an amended clearance or to declare an emergency."

Autopilot 8

- 14 CFR 121.579
  - (a) En route operations. Except as provided in paragraphs (b), (c) and (d) of this section, no person may use an autopilot en route, including climb and descent, at an altitude above the terrain that is less than twice the maximum altitude loss specified in the Airplane Flight Manual for a malfunction of the autopilot under cruise conditions, or less than 500 feet, whichever is higher.

    (b) Approaches. When using an instrument approach facility, no person may use an autopilot at an altitude above the terrain that is less than twice the maximum altitude loss specified in the Airplane Flight Manual for a malfunction of the autopilot under approach conditions, or less than 50 feet below the approved minimum descent altitude or DA/DH for the facility, whichever is higher, except --

    (1) When reported weather conditions are less than the basic VFR weather conditions in § 91.155 of this chapter, no person may use an autopilot with an approach coupler for ILS approaches at an altitude above the terrain that is less than 50 feet higher than the maximum altitude loss specified in the Airplane Flight Manual for the malfunction of the autopilot with approach coupler under approach conditions; and

    (2) When reported weather conditions are equal to or better than the basic VFR minimums in § 91.155 of this chapter, no person may use an autopilot with an approach coupler for ILS approaches at an altitude above the terrain that is less than the maximum altitude loss specified in the Airplane Flight Manual for the malfunction of the autopilot with approach coupler under approach conditions, or 50 feet, whichever is higher.

    (c) Notwithstanding paragraph (a) or (b) of this section, the Administrator issues operations specifications to allow the use, to touchdown, of an approved flight control guidance system with automatic capability, in any case in which --

    (1) The system does not contain any altitude loss (above zero) specified in the Airplane Flight Manual for malfunction of the autopilot with approach coupler; and

    (2) He finds that the use of the system to touchdown will not otherwise affect the safety standards required by this section.

    (d) Takeoffs. Notwithstanding paragraph (a) of this section, the Administrator issues operations specifications to allow the use of an approved autopilot system with automatic capability below the altitude specified in paragraph (a) of this section during the takeoff and initial climb phase of flight provided:

    (1) The Airplane Flight Manual specifies a minimum altitude engagement certification restriction;

    (2) The system is not engaged prior to the minimum engagement certification restriction specified in the Airplane Flight Manual or an altitude specified by the Administrator, whichever is higher; and

    (3) The Administrator finds that the use of the system will not otherwise affect the safety standards required by this section.

Autopilot 9

- Shipping: Crown Princess "Heeling" Incident
  - July 2006 (NTSB/MAR-08/01)
  - One hour out of Port Canaveral, FL "on orders from the captain, the crew engaged the trackpilot, the autopilot function of the vessel's integrated navigation system (INS)"
    - International Maritime Organization (UN) defines an INS as follows: "A combination of systems which are interconnected in order to allow centralized access to sensor information or command/control from workstations, with the aim of increasing safe and efficient ship's management by suitably qualified personnel." (International Maritime Organization document STW 36/3/1 "Validation of Model Training Courses," August 12, 2004, p. 27.)
    - At a high rate of speed: "The vessel's automatic steering system began a turn to port" heading towards Brooklyn (NY)
    - Shallow water a factor
    - "In an effort to counter the effects of a perceived high rate of turn, the second officer, the senior watch officer on the bridge, disengaged the automatic steering mode of the vessel's integrated navigation system and took manual control of the steering. The second officer turned the wheel first to port and then from port to starboard several times, eventually causing the vessel to heel at a maximum angle of about 24° to starboard…causing…300 injuries"
  - NTSB Finding: Second officer's incorrect wheel commands "executed first to counter an unanticipated high rate of turn and then to counter the vessel's heeling."
  - Source: http://www.ntsb.gov/Publictn/2008/MAR0801.pdf

Follow-up: Cruise Control

- Regulations for cruise control on trains
  - 49 CFR § 229.135 (b)(3)(xxiv) & (4)(xx)
    - Requires "black box" to record cruise control on/off
- Regulations for cruise control on cars
  - 49 CFR § 571.101
    - Sets standard for marking/identification of cruise control
  - 49 CFR § 579.4(c)
    - Included in definition of "vehicle speed control" for purpose of mandatory defect reporting
- Possible applicability to autonomous vehicle
  - 49 CFR § 571.101
    - Generally defines "*Control* means the hand-operated part of a device that enables the driver to change the state or functioning of the vehicle or a vehicle subsystem."

Follow-up: Automated Parking

- Automated parking systems:
  - First demonstrated by Volkswagen in 1992:
    - "How Self-Parking Cars Work" by Ed Gradianowski http://auto.howstuffworks.com/self-parking-car1.htm
  - Toyota offered for sale in Japan in 2003
    - "Car, park thyself" http://www.cbsnews.com/stories/2004/01/15/tech/main593482.shtml
  - Why not offered in US?
    - Lack of interest?
      - 70% of British consumers choose it when offered http://auto.howstuffworks.com/self-parking-car1.htm
    - Regulatory/liability issue?
      - Question pending with Toyota general counsel

Q2. Minimum performance standards

- Q: Should there be minimum performance standards for (semi-)autonomous robots operating in public spaces? How should they be established?

Self-parking Toyota Prius

MIT autonomous car "driver's test": safely pulling out into traffic.

Performance Standards 1

- Elevators
  - 236BC: Archimedes invented hoisting devices
  - 1904: Otis introduced the first push-button elevator was introduced
    - "Timeline," Museum for the Preservation of Elevating History, http://www.theelevatormuseum.org/timeline.htm
  - 1915: Otis introduced self-leveling technology
    - "Otis: Company History" http://www.fundinguniverse.com/company-histories/Otis-Elevator-Company-Inc-Company-History.html
  - 1924: Otis introduced push-button technology to stop elevator without operator control (eliminating the need for windows for the operator to see if there were waiting passengers)
    - "FYI", *New York Times* (August 6, 1995) http://query.nytimes.com/gst/fullpage.html?res=990CE7DF113FF935A3575BC0A963958260
  - 1948: Otis introduces Autotronic, automation to handle the traffic in a bank of elevators efficiently
    - "Otis: Company History" http://www.fundinguniverse.com/company-histories/Otis-Elevator-Company-Inc-Company-History.html
  - 1960's: end of elevator operator era

Performance Standards 2

Elevators (continued)

- Early regulation:
  - 1914: Boston implemented first elevator code
  - 1918: NY implemented first elevator rules

  "Timeline," Museum for the Preservation of Elevating History
  http://www.theelevatormuseum.org/timeline.htm
- Today
  - Every state regulates elevators
    - Example: "Elevators, Escalators, and Related Equipment: Inspection, Certification, and Registration" Texas Health and Safety Code, Chapter 754. Subchapter B.
    - Regulations adopt
      - ASCE Code 21 (the American Society of Civil Engineers Code 21 for people movers operated by cables)
      - ASME Code A17 (the American Society of Mechanical Engineers Safety Code for Elevators and Escalators)

      http://tlo2.tlc.state.tx.us/statutes/docs/HS/content/pdf/hs.009.00.000754.00.pdf

Performance Standards 3

- Industrial Robotics Standards:
  - Currently established by the Robotics Industry Association (RIA)
  - RIA belongs to the American National Standards Institute (ANSI)
  - ANSI belongs to the International Standardization Organization (ISO)
  - ANSI has designated RIA as the US robotics standard setting authority to ISO

Dagalakis, N.G., *Industrial Robotics Standards*, Chapter 27 in the Handbook of Industrial Robotics, Edited by S. Nof, (1998) http://www.isd.mel.nist.gov/documents/dagalakis/nofchapter.pdf

  - Examples
    - Standard for construction of robots: ANSI/RAI/ISO 10218-1-2007

http://www.roboticsonline.com/public/articles/archivedetails.cfm?id=3126

    - Standards for robotics safety (for construction and workers): ANSI/ RIA R15.06-1999

http://www.allbusiness.com/sector-92-public-administration/justice-order/1177079-1.html

Performance Standards 4

- Wrap-up
  - Apparently no US standards for consumer robotics
  - Congressional Caucus on Robotics
    - 6/2007 – bi-partisan caucus announced by Rep. Mike Doyle (PA) and Rep. Zach Wamp (TN)
    - Caucus to focus on
      - Traditional industrial robotics industry
      - issues critical to growing companies, markets, and industries.
      - "Increasing general awareness of robotics industry challenges and issues among Members of Congress and policy analysts in the federal government;"
      - "Educating Members of Congress and congressional staff on current and future research, development, and utilization initiatives involving robotics"
      - "Serving as a forum where robotics-related policy issues can be discussed and debated;" and
      - "Ensuring that our nation remains globally competitive as the robotics industry rapidly expands and begins to exert a profound effect on the way our citizens live their lives."

      http://www.house.gov/doyle/newsrel/070626.htm

Follow-up: Standards

- Self-regulation: iRobot Example
  - From iRobot website:
    - "[The vacuum-cleaning robots] have special safety features to help keep your pet safe. Their on-board stair-avoiding system prevents them from falling down stairs. Bump sensors prevents them from doing anything more than gently touching your pet, and they automatically stop if they're lifted from the ground, so noses and paws won't be harmed if a curious pet flips them over. You should keep an eye on your robot the first time you use it around your pet, just in case they get a little too curious or alarmed."
    - Source: http://www.irobot.com/sp.cfm?pageid=270
- Who bears ultimate responsibility?
  - Human overseer?
  - Machine?
- At what point (if ever) does the calculus shift?

Q3. Human-proxies

- Q. What constitutes a “safe” human override system?
  - Military drones?
  - Automatic credit evaluation systems?
  - How should courts consider questions about human override systems?

Predator (tele-operated)

Military Drones

- Predator UAVs (Unmanned Aerial Vehicles)
- Use began in 2001-02
  - First night of Afghan combat (2001): Gen. Franks would not fire on Taliban leader Mullah Omar
  - Source: "King's Ransom," The New Yorker, 22 October 2001 (abstract available at: http://www.newyorker.com/archive/2001/10/22/011022fa_FACT1)
- Law of Armed Combat
  - Combatants vs. Noncombatants
  - Lawful Targeting
  - Military Necessity (limit collateral damage)
  - No Inherent Right to Self-Defense?
  - Source: "The Problematic Nexus: Where Unmanned Combat Air Vehicles and the Law of Armed Conflict Meet", by John J. Klein, LCDR USN, dated July 22, 2003, available at http://www.airpower.maxwell.af.mil/airchronicles/cc/klein.html

Military Drones 2

- Canada: considering purchasing Predators because its current UAV is non-functioning in extreme weather in Afghanistan
  - Proposal reduced from $500MM to $100MM
  - "We generally insist on a degree of oversight, legitimacy, adherence to the laws of war that require a man in the loop pretty definitively."
  - Source: Canadian Press (10/6/2007) http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/20071006/military_drones_071006

Countrywide

- Pickrell v. Countrywide Credit Industries, Inc., 2007 Cal. App. Unpub. LEXIS 8041
  - Note: Special restrictions apply to California "unpublished" opinions
  - Trial court denied plaintiffs' motion for class certification
  - Class action:
    - question of one or common interest
    - of many persons, or when parties are numerous
    - Impracticable to bring all before the court

Countrywide 2

- Are underwriting fees ($450/loan) too high?
- Lawsuit involves conforming, conventional loans
  - Received a 'positive' computerized score from an automated underwriting system (AUS)
  - "The premise underlying this lawsuit is that following the federal government's 1995 mandate that only conforming, conventional loans with positive AUS scores may be resold to [Fannie Mae] and [Freddie Mac], the underwriting process for class loans was transformed from an expensive, labor intensive process to an inexpensive, computerized process, with a corresponding reduction of $400 to $650 in actual underwriting costs for each class loan."
  - Once a loan receives a positive AUS score, 'underwriting is complete' because Fannie Mae and Freddie Mac 'guarantee' that they will purchase the loan
  - Class: positive AUS score, but paid full underwriting fee

Countrywide 3

- Defense factors:
  - AUS is a tool, "it does not underwrite loans"
    - Countrywide expert: "' [E]ven though I consider myself to be an experienced underwriter, it sometimes takes me five to seven hours of work just to reach an underwriting decision on an "Accept" loan' "
  - Underwriting process differs for each loan (type of borrower, property, and loan type involved)
  - AUS results depend upon borrower-supplied info, which should be verified.
  - AUS must be run several times for each loan if borrower's circumstances change during process.
  - AUS must be run several times if "there are questionable results before an 'accept' recommendation is obtained."
  - Underwriting fees varied by loan type and branch
  - Issuing a loan is an exercise of judgment, not based solely on AUS (only a recommendation). "Loans that received positive AUS scores are not automatically approved for sale to Fannie Mae or Freddie Mac…
  - Additionally, according to the declaration of John Kelly, Countrywide's senior vice president of artificial intelligence, Countrywide remains obligated to indemnify or repurchase failed loans even after they are resold to Fannie Mae or Freddie Mac."

Countrywide 4

- Eight computer runs were required to obtain a positive AUS score for the name plaintiffs' loans
- $50/AUS run
- 8 x $50 = $400, close to $450 fee defendants charged as to the named plaintiff

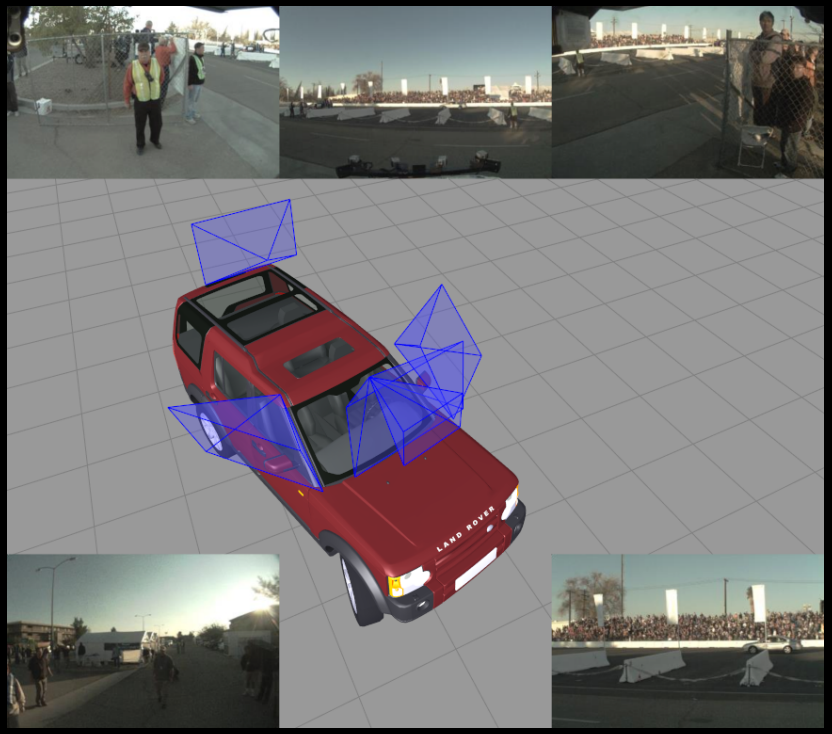
Follow-up: Evidentiary questions

- What discovery is permissible to determine
  - Allocation of shared responsibility
  - Differences between policy and practice

- Should Daubert apply to experts in these cases?
  - *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993)
  - Court permitted "scientific evidence" to be presented by experts that is not "generally accepted" and has not been subjected to peer review or publication (specific case involved recalculation of study results)

Q4. Data Acquisition and Privacy

- Q: Autonomous vehicles inherently record their surroundings. How do we balance retention/ forensic needs versus privacy concerns?



Privacy 1 - Government cameras

- 1st Amendment: impact on right of assembly
- 4th Amendment: "in plain sight" doctrine
- Privacy Act: federal collection of any personally identifiable data (5 USC § 552a)
  - Must notify those about whom collected of purpose and use
  - Must publish to whom and under what circumstances the data will be shared
  - Not currently implicated because the data won't be searchable by person
- MacPherson v. IRS, 803 F.2d 479 (9th Cir. 1986)
  (discussion of "incidental surveillance", law enforcement, and 1st amendment; decision that it wasn't prohibited in the circumstance)
- Electronic Privacy in Communications Act: regulates wiretapping (18 U.S.C.S. §§ 2510-2522)
  - Not implicated if no sound recording (see, e.g., US v. Carona-Chavez, 328 F.3d 974 (8th Cir., 2003)

Privacy 2 - Government cameras

- Results:
  - Police in-car cameras in wide use
    - 49 states received DOJ grant money for them (COPS In-car Camera Grant Program, COPS Fact Sheet, US DOJ (12/12/03))
  - Cameras monitoring
    - subways
    - schools
    - streets

(see, e.g., Metropolitan Police Department, Closed Circuit Television (CCTV) 2007 Annual Report and ACLU testimony on Surveillance System before DC City Council (2/25/2002))

Privacy 3 - Industry cameras

- Employee monitoring
  - 48% of companies use video surveillance to reduce employee theft, violence, and sabotage & 78% notify employees of the surveillance

    (2007 Electronic Monitoring & Surveillance Survey, American Management Association)
  - Regulated by state law
    - Courts have held such filming is acceptable except in places where there is a reasonable expectation of privacy
      - Salazar v. Golden State Warriors, No. C-99-4825 CRB, 2000 U.S. Dist LEXIS 2366, (N.D. Cal. March 3, 2000) (finding no violation in monitoring in a dark parking lot using night-vision infrared high-powered scoping devices)
      - Fayard v. Guardsmark, Inc., Civ. No. 89-0108, 1989 U.S. Dist. LEXIS 14211; 5 I.E.R. Cas. (BNA) 516 (E.D. La. Nov. 29, 1989) (finding no violation where employer surveilled and ran license plate checks on cars parked at employee's home because the observed vehicles were in public view)

Privacy 4 - Industry cameras

Filming the public:

- Regulated by state law:
  - Stratton v. Krywko, 2005 Mich. App. LEXIS 23; 33 Media L. Rep. 2265 (2005) (unpublished)
    - Plaintiff filmed during a documentary about front-line trauma care after car accident following alcohol and marijuana consumption
    - Plaintiff's name was visible in the film
    - Plaintiff's claims for defamation properly dismissed because the "statements" were true
    - Plaintiff's claims for invasion of privacy by "public disclosure of private facts" were improperly dismissed because whether her name and facts were of public interest was subject to debate
    - Plaintiff's claim for intrusion upon seclusion should not have been dismissed in light of the evidence that she had refused to sign an informed consent form
    - Plaintiff's claims for "false light invasion of privacy" were properly dismissed because the facts in the film were true

Privacy 5 - Private Cameras

- State law applies
  - No limitations on taking of photographs
  - Limitations are on use
    - Privacy/Defamation claims require
      - "publication" to at least one other person
    - Violations may occur
      - if the information is false (doctored photo)
      - if the information creates a false impression
      - if it makes private facts public
        - » Unless newsworthy
        - » Public person exceptions
    - Other claims may be available for
      - Negligence
      - Invasion of seclusion

Follow-up: Matt???

Addressing Today's Issues

- Work with ABA Division for Public Services
  - *"studies important legal issues affecting society and formulates remedial responses ranging from **policy positions** to demonstration projects, **model legislation**, technical assistance, videotapes, clearinghouses, public education initiatives, **working conferences** and numerous publications"*
- Work with Governmental Affairs Office
  - *"serves as the focal point for the Association's advocacy efforts before Congress, the Executive Branch and other governmental entities on diverse issues of importance to the legal profession on which the ABA House of Delegates has adopted policy"*

Q&A