The Need for Legal Education in Cybersecurity Curriculum

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Who Am I?

Paula S. deWitte, J.D., Ph.D., P.E.

Education

Purdue University
B.S., M.S., Mathematics / Education & Distinguished Alumna, 2015
Texas A&M University
Ph.D., Computer Science, Texas A&M University
St. Mary's University School of Law
J.D., St. Mary's University School of Law

Licenses and Registrations

Licensed Attorney, *State of Texas*
Registered Professional Engineer, *State of Texas*
Registered Patent Attorney, *USPTO*

Work Experience
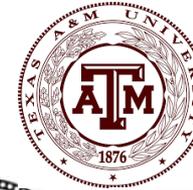
Entrepreneur
Business Owner
Researcher

Current: Professor of Practice, Computer Science & Engineering (College of Engineering)
Joint appointments –
Texas A&M University Law School
Maritime Business Administration/Texas A&M Galveston Campus, and

"*The first thing we do, let's kill all the lawyers.*"

William Shakespeare's *Henry VI, Part 2*, Act IV, Scene 2

99% of lawyers give the rest a bad name.
--Steven Wright

Focusing on the ~~Soft~~ Non-Technical Skills

- NIST NICE (National Initiative for Cybersecurity Education) Framework Structure:
- 7 Categories (high level)
- 52 Work Roles
- 33 Specialty Areas
- 630 knowledge descriptions
- 1007 tasks
- 374 skills
- 176 abilities
- Only 1 or 2 of the NIST cybersecurity work roles requires a law degree
- But…

Example of an Important "Non-technical" Skill

- Manual search of the NIST NICE for "legal;" "law;" "privacy;" "counsel;" "regulation;" "compliance'" "policy/policies" "contract," "legislation," "Executive Order" …
- Found
  - 72 tasks (out of 1007)
  - 26 knowledge descriptions (out of 630)
  - 6 skills (out of 374)
  - 12 abilities that require some form of specific law and privacy knowledge.

Work Role: System Architecture (ARC)

- *"Develops system concepts and works on the capabilities phases of the systems development life cycle; translates technology and environmental conditions (e.g., law and regulation) into system and security designs and processes."*
- Issues for cybersecurity:
  - *How are laws and regulations incorporated into system security designs/processes?*
  - *What are the penalties (or liabilities) for not properly building the system architecture that is not compliant with laws and regulations?*

Work Role: Threat Analysis (TWA)

- "*Identifies and assesses the capabilities and activities of cybersecurity criminals or foreign intelligence entities; produces findings* *to help initialize or support law enforcement* *and counterintelligence investigations or activities.*"

- Issues for cybersecurity:
  - *How is evidence bagged and tagged?*
  - *What evidence can be gathered legally without a search warrant?*

Representative Knowledge Units

- K003: "*Knowledge of laws, regulations, policies, and ethics as they relate to cybersecurity and privacy.*"
- K005: "*Knowledge of digital rights management.*"
- K0044: "*Knowledge of cybersecurity and privacy principles and organizational requirements (relevant to confidentiality, integrity, availability, authentication, non-repudiation).*" or
- K0107: "*Knowledge of Insider Threat investigations, reporting, investigative tools and laws/regulations.*"

What Legal Concepts?

- Jurisdiction
- Standing
- Structure of American courts
- Standards of evidence
- Separation of power
- Statutory, judicial, and executive "laws"
- Precedent
- Differences between American law and other bodies of law
    - 1st Amendment protections
    - 4th Amendment compliant search warrants
    - 5th Amendment protection against self incrimination
- What words have legal definitions that may differ from technical definitions?
    - → How do we interpret these amendments in the digital age?
→ Knowing what is legal (or not legal)

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Computer

- The term "computer" means an electronic, magnetic, optical, electrochemical, or other high speed data processing device performing logical, arithmetic, or storage functions, and includes any data storage facility or communications facility directly related to or operating in conjunction with such device, but such term does not include an automated typewriter or typesetter, a portable hand held calculator, or other similar device.
 - 18 USC § 1030(e)(1) (aka CFAA)

State Laws

Standing

- Must have suffered an injury-in-fact
  - "Concrete and particularized"
  - "Actual or imminent, not conjectural or hypothetical"
- Injury-in-fact traceable to the D's unlawful conduct
- Redressability
- → Must "clearly and specifically set forth facts sufficient to satisfy" the standing requirement.
- → [Note the footnote for Whitmore v Arkansas p 53…What court heard this case? What is this case?]

Federal Appellate Districts

Geographic Boundaries
of United States Courts of Appeals and United States District Courts
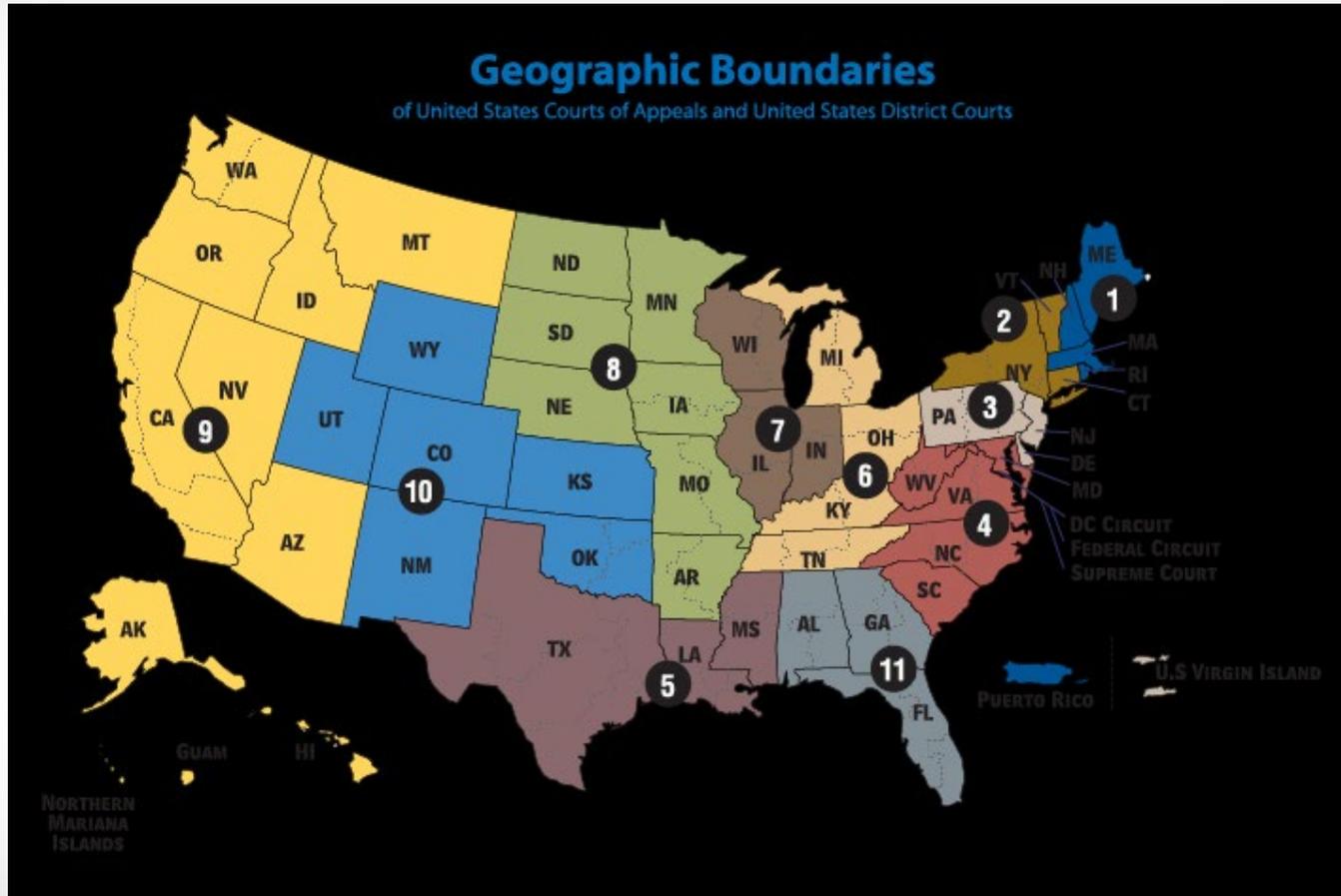
12 Circuit Courts (geographic) including DC Circuit + Court of Appeals for the Federal Circuit (Subject Matter Jurisdiction)

Technical/Legal Challenges

- Hacking back
- "Privacy by design"
- "Security by design"
- Data ownership
- Dangers of bug bounties
- Dangers of pen testing
- Knowing what is legal (or not legal)
- Confuse ethics with law!
- Difference between engineering and legal mindsets

What Laws?

- CFAA – Computer Fraud & Abuse Act
- DMCA – Digital Millennium Copyright Act
- GDPR (EU) and California CCPA
- Stored Communications Act
- Electronic Communications Privacy Act
- The Privacy Act

How I Teach

- Standard lectures
- Discussions
- Weekly book recommendations:
  - This Is How They Tell Me the World Ends (Nicole Perlroth)
  - The Great Dissenter (Peter S. Canellos)
  - Gideon's Trumpet (Anthony Lewis)

Course

- Textbook: Cybersecurity Law (Jeff Kosseff)
- Recommended: Tallinn Manual 2.0 on International Law on Cyber Operations
- Optional Texts:
  - You'll See This Message When It Is Too Late (Josephine Wolff)
  - Twenty-Six Words that Created the Internet (Jeff Kosseff)
  - This Is How They Tell Me the World Ends (Nicole Perlroth)
- Written assignments
- Take-home exams (2)
- Semester paper
- → Intense analysis and writing

Comments

- *Dr. deWitte's class was really eye-opening for me because it emphasized the importance of law and ethics in computer science, which I feel gets overlooked frequently in preparation for the real world. I enjoyed reading and critically analyzing cases that were presented in class. I think it's an important class to take for all computer science students in college.*