

Duquesne Law Review

Volume 58
Number 1 *Artificial Intelligence: Thinking About
Law, Law Practice, and Legal Education*

Article 3

2020

The Ghost in the Machine: Artificial Intelligence in Law Schools

Emily Janoski-Haehlen

Sarah Starnes

Follow this and additional works at: <https://dsc.duq.edu/dlr>



Part of the [Legal Education Commons](#), and the [Science and Technology Law Commons](#)

Recommended Citation

Emily Janoski-Haehlen & Sarah Starnes, *The Ghost in the Machine: Artificial Intelligence in Law Schools*, 58 Duq. L. Rev. 3 (2020).

Available at: <https://dsc.duq.edu/dlr/vol58/iss1/3>

This Article is brought to you for free and open access by Duquesne Scholarship Collection. It has been accepted for inclusion in Duquesne Law Review by an authorized editor of Duquesne Scholarship Collection.

The Ghost in the Machine: Artificial Intelligence in Law Schools

Emily Janoski-Haehlen and Sarah Starnes***

I.	INTRODUCTION	4
II.	ADOPTION OF LEGAL TECHNOLOGIES BY THE STATES	5
III.	TYPES OF TECHNOLOGIES AVAILABLE	6
	A. <i>Legal Writing</i>	6
	B. <i>Legal Practice</i>	9
	C. <i>Technologies Promoting Access to Justice</i>	10
	D. <i>Technologies for Use Across the Curriculum</i>	12
IV.	ADAPTING AND UTILIZING ARTIFICIAL INTELLIGENCE AS A TECHNOLOGY	16
	A. <i>Legal Research Platforms and Artificial Intelligence</i>	16
	B. <i>Artificial Intelligence and Legal Research Robots</i>	19
V.	A SURVEY OF TECHNOLOGY IN LAW SCHOOLS	21
VI.	SUGGESTED UNIFORM STANDARD OF TECHNOLOGY COMPETENCE FOR LAW SCHOOLS	22
VII.	CONCLUSION	24
	APPENDIX A: A SUMMARY OF TECHNOLOGY OFFERINGS AT LAW SCHOOLS	25

* Emily Janoski-Haehlen is the Associate Dean of Academic Affairs, Library Services, & Law and Technology Programs and Associate Professor of Law at the University of Akron School of Law.

** Sarah Starnes is an Assistant Law Librarian at the University of Akron School of Law.

I. INTRODUCTION

Arguably late to the party, the legal field is working to catch up and adapt to the vast amount of technologies that exist today and will exist in the future. The American Bar Association (ABA) has addressed the presence and use of technology in Model Rule 1.1, Comment 8, by stating that lawyers must be technologically competent and are required to use due diligence when evaluating legal technologies.¹ This has now been adopted by thirty-six states, and no doubt the rest will follow soon enough.² However, the ABA has yet to address how technology should be taught in law schools to best prepare future attorneys to be competent and aware of what technologies exist. There has yet to be any sort of uniform standard that all law schools are required to follow and, thus, each law school is left up to its own devices in how to incorporate legal technology into their curriculum.

This article addresses the different topics law schools are teaching and how each either succeeds or fails at teaching students to be technologically competent. This article provides a small guide to some of the proven-successful classes and technologies taught and how they can be incorporated into a law school's current curriculum.³ This article aims to assist in creating a bright line and uniform standard to assist all law schools in producing "tech-savvy" lawyers. A big part of being technologically competent is the ability to understand and utilize, not rely on, artificial intelligence. This article discusses the use of artificial intelligence in the legal field, and how it can best be taught to law students, who will inevitably come across and use it as practicing attorneys.⁴ This alters how

1. MODEL RULES OF PROF'L CONDUCT r. 1.1 cmt. 8 (AM. BAR ASS'N 1983) ("To maintain the requisite knowledge and skill, a lawyer should keep abreast of changes in the law and its practice, including the **benefits and risks associated with relevant technology**, engage in continuing study and education and comply with all continuing legal education requirements to which the lawyer is subject.") (emphasis added); *see also id.* r. 1.1.

2. *See* Robert Ambrogio, *Tech Competence*, LAWSITES, <https://www.lawsitesblog.com/tech-competence> (last visited Nov. 8, 2019) (tracking the states that have adopted the ABA's revised comment to Rule 1.1). Ambrogio continually updates this list, current at thirty-six states. *Id.* He provides links to each of the state's pages that discuss the adoption of Comment 8 from Rule 1.1, as well as when it was approved and then went into effect. *Id.* Where available, he also provides more details as to how the state has adopted the rule, and if they have done so outside or with a different interpretation than comment 8 from Rule 1.1. *Id.*

3. *See infra* Section III (discussing the technologies that currently exist and how they can be incorporated into the classroom).

4. *See infra* Section IV (introducing artificial intelligence and how it is used primarily so far in the legal research field).

legal research is taught and, combining the education of legal research and legal technologies, aligns with the overall suggestion that a uniform standard of legal technology should be created.

II. ADOPTION OF LEGAL TECHNOLOGIES BY THE STATES

The ABA's Model Rules of Professional Conduct include Rule 1.1 on Competence. In 2012, they introduced Comment 8, which states:

[t]o maintain the requisite knowledge and skill, a lawyer should keep abreast of changes in the law and its practice, *including the benefits and risks associated with relevant technology*, engage in continuing study and education and comply with all continuing legal education requirements to which the lawyer is subject.⁵

As of April 2019, thirty-six states have followed in adopting this duty of technology competence.⁶ One of the biggest discussions that has grown from the states adopting the duty of technology competence is how to actually become competent. Discussed later, there are groups and programs, such as the Legal Technology Assessment by Procertas, the National Society on Legal Technology, and the International Legal Technology Association that provide continuing legal education and other education on the topic.⁷ But, ultimately, the best way to address this required competence level is to catch and teach individuals while they are still students and are not yet

5. MODEL RULES OF PROF'L CONDUCT r. 1.1 cmt. 8 (emphasis added).

6. Ambrogi, *supra* note 2.

7. See *Legal Technology Assessment*, PROCERTAS, <https://www.procertas.com/offers/legal-technology-assessment/> (last visited July 30, 2019) (offering their legal technology assessment, which trains legal professionals on basic technology tools on Microsoft Word, Microsoft Excel, and PDF). Some of the options that are available to learn in Word are accepting and turning off changes, replacing and formatting text, adding footnotes, inserting a hyperlink, modifying and updating styles, inserting cross references, adding page breaks and non-breaking spaces, as well as cleaning document properties. *Id.* On Excel, an individual can learn how to copy or rename a worksheet, insert a row or column, format the width or text, conduct mathematical functions, and insert pivot tables and charts. *Id.* Last, individuals on PDF can learn how to convert PDFs to Word and Excel and vice versa, recognize text, extract a page, redact information, create a bookmark or internal link, remove hidden information, and password protect the document. *Id.* Individuals are scored not just on whether the task was completed correctly but also how long it took to complete the module. *Id.*; see also *Legal Technology Certificate*, NAT'L SOC'Y FOR LEGAL TECH., <https://legaltechsociety.org/certification> (last visited July 30, 2019) (offering a legal technology certificate that requires and offers training on twelve different software programs, including Microsoft Office, Adobe, Clio, Skype, and Worldox); *About ILTA*, INT'L LEGAL TECH. ASS'N, <https://www.iltanet.org/about> (last visited July 30, 2019) (focusing on "delivering relevant, peer-developed programming to its constituents around the globe" with a focus on emerging technologies).

required to abide and adhere to the competency requirements by the ABA and the states.

Teaching students to become practice-ready and familiar with legal technology will allow them to look more appealing when searching for jobs as well as enter the legal field confident in their technology competence. However, it is now up to academia to find these technologies, teach ourselves if we are not familiar with those technologies, and then pass that knowledge on to the students.

III. TYPES OF TECHNOLOGIES AVAILABLE

Deciding to implement and use technologies in law schools is the first step. However, the next and much more intimidating step is deciding which technologies to use. There are hundreds, if not thousands, of programs and software that exist to assist attorneys in their workflow.⁸ There is a fine line between offering education on certain technologies and promoting one product over another. The list below is not inclusive of all the technologies available but provides a starting point for those who are interested but unsure of which technologies to implement into their curriculum. Most of these technology providers give free access to law schools and law students. First, technologies that assist in legal writing will be discussed, followed by those that assist in legal research, then in legal practice, such as software management programs, and last, any other technologies that can assist law students in a specific topic or course.

A. *Legal Writing*

Legal writing is the benchmark course for law students. Regardless of which field of law they choose to practice, most of what attorneys do is research and write. Being that they are required to write a lot, there are several technologies available that assist attorneys in making the process more streamlined. Although it is imperative to teach students the basics of legal writing, an advanced

8. See *Legal Technology Resource Center*, AM. B. ASS'N, https://www.americanbar.org/groups/departments_offices/legal_technology_resources/ (last visited July 30, 2019) (providing technology resources and information through blogs, publications, and webinars). The ABA's Legal Technology Resource Center does a great job of constantly checking and updating to make sure attorneys are aware of the newest and most up-to-date technology information. See *id.* The Resource Center offers a buying guide to help attorneys find the right software and programs for their practice and a blog, *Law Technology Today*, which is updated constantly with the latest legal technology news. *Id.* The ABA also publishes a *Tech Report* every year, which discusses the "latest trends in technology including virtual law practice, legal research, and more." *Id.*

course teaching them how to utilize technologies to more efficiently spend their time would assist in making them practice ready. Several types of technologies will be discussed below.

One type of technology that has seen a dramatic increase in use is software that automatically edits and revises work product. An example of this is WordRake,⁹ an overlay for Microsoft Word that assists in editing documents to make them “clearer, shorter, and better.”¹⁰ By eliminating wordiness, the document and its purpose becomes more focused and direct. WordRake does this through a Microsoft Office overlay, including both Word and Outlook.¹¹ This helps by not just editing documents but also emails.¹²

Along with editing and revision, document automation has become more popular. Programs such as HotDocs work with the author of the document to create an intelligent, accurate, and interactive template that can be used for those documents that tend to be done with some repetition.¹³ Being able to easily create a template helps recreate documents that are compliant with the law and dramatically lessens the chances of a mistake being made. These document automation programs are oftentimes integrated into other practice management systems, which will be discussed later.

To be a highly effective attorney, technologies now are used not just to help with editing, revision, and automation, but are also used to check for substance. Products like Clerk from Judicata allows a

9. *Editing Software for Professionals*, WORDRAKE, <https://www.wordrake.com> (last visited Dec. 2, 2019). An example from the homepage shows that by with just a click of a button, the sentence “[p]oor writing will end up costing a business more in the long run” to “[p]oor writing will cost a business more eventually.” *Id.* Writing tips are also available, which can help attorneys, and students, write better from the outset and lessen the need to rely on software such as WordRake. *Id.*

10. *About WordRake*, WORDRAKE, <https://www.wordrake.com/editing-software-for-writing-professionals-about> (last visited Dec. 23, 2019).

11. *About WordRake Software*, WORDRAKE, <https://www.wordrake.com/writing-improvement-software> (last visited Dec. 23, 2019).

12. *About WordRake*, *supra* note 10.

13. HOTDOCS, <https://www.hotdocs.com/> (last visited July 30, 2019); *see also* SMOKEBALL, <https://www.smokeball.com/> (last visited July 30, 2019) (assisting in not just helping attorneys create their own forms and templates but providing forms and templates required by both federal and state courts); PATHAGORAS, <https://www.pathagoras.com/> (last visited July 30, 2019) (allowing attorneys to create a form from their own document within two clicks as well as providing a list of available forms that can be overlaid into Microsoft Word); THEFORMTOOL, <https://www.theformtool.com> (last visited July 30, 2019) (highlighting that over half of all legal documents are some form of repetitive form and encouraging attorneys to use their product to create a form to decrease the amount of time filling out and creating the same form over and over again). Document automation software has become very prevalent in creating reusable documents and forms and assisting in automating workflow. Nicole Black, *These Document Assembly Tools Will Keep Your Law Firm on Track*, ABA J. (June 25, 2019, 6:30 AM), <http://www.abajournal.com/news/article/these-document-assembly-tools-will-keep-your-firm-on-track>. Black points out that document automation tools can be available on their own as well as integrated into a firm’s practice management software. *Id.*

brief or other legal document to be uploaded into its platform and then to be analyzed based on the arguments, drafting, and context.¹⁴ Clerk uses its vast database of legal resources to identify the arguments made and whether or not there is logical or historical favorability.¹⁵ Although in theory the research and writing is effective, Clerk will actually go in and check that work to see if a similar argument has been used before and the effectiveness of the argument. The software also ensures all case law is relevant and valid.¹⁶ The ability to check with a database of legal information allows Clerk to also check quotes for accuracy.¹⁷

Similar to Clerk by Judicata, both Westlaw and Lexis offer a similar program that is fully integrated within their respective platforms. Drafting Assistant by Westlaw can be used to find errors and missing information, find issues within one's own argument, or identify weak points in an opponent's arguments.¹⁸ It allows for the integration of automated documents from one's firm as well as checking for cross references and whether the law itself is still good and valid.¹⁹ It can automatically insert citations and create a table of authorities.²⁰ Lexis has a similar platform, but rather than being integrated through the platform itself, it works within Microsoft Office, including Word.²¹ It allows the document's author to check citations for accuracy and validity quickly and efficiently, while automatically adding them to the document itself and to the table of authorities if necessary.²² It also checks to make sure quotes are correct.²³ These proofreading tools are an invaluable resource to attorneys, as they no longer have to spend time editing and double checking their work, as the platforms automatically do it for them.

14. *Clerk*, JUDICATA, <https://www.judicata.com/demo/clerk> (last visited July 30, 2019); see also Jean O'Grady, *Forget the Robots You Might Just Need a Clerk. Judicata's Clerk: Algorithms and Analytics that "Grade" and Recommends Edits to Briefs*, DEWEY B STRATEGIC (Nov. 10, 2017), <https://www.deweybstrategic.com/2017/11/judicata-clerk.html> (discussing how analytics are used to assess the strength and type of argument in a brief, check for quotation accuracy, and consider similar cases). However, please note that Clerk by Judicata only covers California case law. *Id.*

15. *Clerk*, *supra* note 14.

16. *Id.*

17. *Id.*

18. *Drafting Assistant*, THOMSON REUTERS, <https://legal.thomsonreuters.com/en/products/drafting-assistant> (last visited July 30, 2019).

19. *See id.*

20. *Id.*

21. *Lexis for Microsoft Office*, LEXISNEXIS, <https://www.lexisnexis.com/en-us/products/lexis-for-microsoft-office.page> (last visited July 30, 2019).

22. *Id.*

23. *Id.*

Last, there are several editing and reference tools that can assist in creating bigger pieces of work. Although more helpful for academics, a passing awareness of these technologies can assist both as a student and then as an attorney, if he or she chooses to publish anything on a topic. Popular tools include Scrivener, Zotero, and Mendeley.²⁴ All three of these tools work by altering Microsoft Word to create a binder-like approach that allows you to flip between sections and folders of information.²⁵ They also allow you to sort your research and keep it in a cloud, so the information can be easily accessed and then inserted as a citation where needed.²⁶ RefWorks is a software similar to the other platforms but only works as a personalized database of accessible research.²⁷

Although this list of legal writing tools is nowhere near exhaustive, it provides a starting point for what sorts of technologies exist and how they can be utilized to create practice-ready students.

B. *Legal Practice*

An integral part of successful law practice is using practice management software. This type of software can store client files in an easily accessible, secure, and sharable place.²⁸ Although this list is nowhere near exhaustive, several popular platforms include Clio, Rocket Matter, Westlaw's Firm Central, CosmoLex, MyCase, and PracticePanther.²⁹ Most of these platforms allow students free li-

24. See *Scrivener*, LITERATURE & LATTE, <https://www.literatureandlatte.com/> (last visited July 30, 2019) (introducing it as a tool for authors, as it functions as a typewriter, ring-binder, or scrapbook but can also be used for many legal functions); ZOTERO, <https://www.zotero.org/> (last visited July 30, 2019) (functioning as a "personal research assistant" and as an easy-to-use tool for collecting, organizing, citing, and sharing research); MENDELEY, <https://www.mendeley.com> (last visited July 30, 2019) (allowing users to access their "library" from anywhere, including sources and documents that are currently being worked on and generating references and citations with just a few mouse clicks).

25. *Scrivener*, *supra* note 24; ZOTERO, *supra* note 24; MENDELEY, *supra* note 24.

26. *Scrivener*, *supra* note 24; ZOTERO, *supra* note 24; MENDELEY, *supra* note 24.

27. See *About RefWorks*, PROQUEST, <https://refworks.proquest.com/about-us/> (last visited July 30, 2019) (working with the databases available through ProQuest, it allows a user to create their own databases of resources that can be made available anywhere and at any time).

28. *Law Practice Management Software*, CAPTERRA, <https://www.capterra.com/law-practice-management-software/> (last visited Dec. 2, 2019).

29. See, e.g., CLIO, <https://www.clio.com/> (last visited July 30, 2019) (functioning as a practice management software system that assists in managing one's firm, including managing case files and clients by organizing cases, contracts, and document automation, generating bills, running reports and works to attract potential clients, track their progress, and secure them as a client); ROCKET MATTER, <https://www.rocketmatter.com/> (last visited July 30, 2019) (functioning as a practice management software system that works in the cloud to allow access to information from anywhere and includes features such as bill-as-you-work, document automation with customizable templates, and insights into clients, matters, and

censes, so that they are familiar with (and hopefully use) the product once they are practicing. Some even offer free attendance and training at their conferences to librarians and professors who want to use it to teach their students.

These platforms do a multitude of things, including integrating email and calendars, keeping track of clients and other contacts, organizing and keeping track of a case and associated documents, keeping time, managing tasks, overseeing security, checking conflicts, managing documents, assembling and automating, billing and invoicing, and accounting functions.³⁰ Although learning the law is important, learning how to work with the required software to practice law is often overlooked in law schools. Giving students the opportunity to become familiar with and practice improving workflow and efficiency makes the students more appealing to potential employers.

C. *Technologies Promoting Access to Justice*

Something else that is vital to the growth of technology is the availability and use of access to justice programs. Not everyone can afford an attorney. Attorneys working in the public sector may require the aid of helpful and inexpensive tools. Often, people do not know where to go to find legal rules or information about their rights, and thus programs such as the A2J Tech Fellows Program, created by the Center for Computer-Assisted Legal Instruction (CALI), the implementation of chatbots and mobile applications, as well as programs such as a2j Author, help to provide legal assistance to the underserved.

other associates); *Firm Central*, THOMSON REUTERS, <https://legal.thomsonreuters.com/en/products/firm-central> (last visited July 30, 2019) (functioning as a practice management software system that focuses on simplifying the process to bring management, billing, scheduling, document assembly, and integration into Westlaw all in one place); COSMOLEX, <https://www.cosmolex.com/> (last visited July 30, 2019) (functioning as a cloud-based practice management system with a focus on billing and accounting); MYCASE, <https://www.mycase.com/> (last visited July 30, 2019) (functioning as a case management system, which keeps case documents, messages, and contacts all in one place and accessible from anywhere); PRACTICEPANTHER, <https://www.practicepanther.com/> (last visited July 30, 2019) (functioning as a practice management system to automate functions such as billing, providing information through a cloud based system, and highlighting data protection and encryption); see also *Law Practice Management Software*, LAWYERIST, <https://lawyerist.com/reviews/law-practice-management-software/> (last visited Oct. 8, 2019) (providing a list of other practice management software programs and explaining what these systems do, including emailing clients, keeping track of a calendar and appointments, managing clients and cases, checking for conflicts, keeping everything secure and encrypted, helping with document management and automation, keeping track of time and billing, and assisting with the basic proponents of bookkeeping).

30. CLIO, *supra* note 29; ROCKET MATTER, *supra* note 29; *Firm Central*, *supra* note 29; COSMOLEX, *supra* note 29; MYCASE, *supra* note 29; PRACTICEPANTHER, *supra* note 29.

Access to Justice has a tech fellows program and hosts the Justice Innovation Challenge every year, which helps to create practical and accessible solutions for those needing legal aid.³¹ This challenge results in the creation of mobile applications and websites that help those that need it most and spreads awareness of the need to provide such services. Access to Justice has also created an interactive website, a2j Author, which helps self-represented litigants by allowing them to author documents necessary for the court system.³² It works through the Guided Interview and Template system, which takes complex information from legal forms and puts it into a guided interview, which makes it easy for those who do not understand complex legal forms and terminology to fill out any necessary forms.³³ The program is free to courts, legal service organizations, and non-profits to prepare and create these guided interviews that are then made available to self-represented litigants.³⁴

Chatbots and mobile applications are also spiking in popularity, as individuals are starting to seek their own way of handling small matters, such as paying traffic tickets. DoNotPay is a massive mobile application that helps individuals' dispute parking tickets and other small matters.³⁵ It has grown in available services, including making its services available for free.³⁶ Docubot generates document templates for individuals needing legal services and then guides them through the process of filling out the forms.³⁷ CitizenShipWorks is a completely free mobile application that assists an

31. ATJ TECH FELLOWS PROGRAM, <https://www.atjtechfellows.org/> (last visited Jan. 17, 2020). This program “connects law students with civil justice organizations for an immersive, 10-week, full-time, paid project-based summer fellowship experience. Fellows spend the summer leveraging technology, data, and design thinking to develop solutions that address barriers preventing low-income Americans from receiving legal help.” *Id.*

32. A2J AUTHOR, <https://www.a2jauthor.org/> (last visited July 30, 2019). There have been roughly 4.7 million guided interviews run and over 2.6 million documents assembled since 2005. *Id.* There are over 1,100 guided interviews available in forty-two states and four foreign countries. *Id.*

33. *Id.*

34. *Id.*

35. DONOTPAY, <https://donotpay.com> (last visited Nov. 8, 2019); *see also* Jon Porter, *Robot Lawyer DoNotPay Now Lets You ‘Sue Anyone’ Via an App*, VERGE (Oct. 10, 2018, 12:13 PM), <https://www.theverge.com/2018/10/10/17959874/donotpay-do-not-pay-robot-lawyer-ios-app-joshua-browder> (discussing how the creator of DoNotPay has grown the app from simply getting its users out of parking tickets to other legal services such as combating volatile airline prices, data breaches, late package deliveries, and unfair banking fees); Steph Wilkins, *DoNotPay Is the Latest Legal Tech Darling, But Some Are Saying Do Not Click*, ABOVE THE LAW (Oct. 12, 2018, 1:32 PM), <https://abovethelaw.com/legal-innovation-center/2018/10/12/donotpay-is-the-latest-legal-tech-darling-but-some-are-saying-do-not-click/> (discussing the potential pitfalls of using a robot lawyer to assist with parking tickets and small claims).

36. *See* Porter, *supra* note 35.

37. *Docubot: Artificial Intelligence for Legal Websites*, 1LAW (Aug. 22, 2016), <https://www.1law.com/docubot-ai/> (working as a WordPress plug-in and focusing on providing an “affordable, accessible option for people who need legal assistance, but aren’t getting

individual step-by-step in applying for citizenship.³⁸ Disastr is a mobile application that gives legal information in areas such as disaster planning, recovery, housing, food stamps, and insurance.³⁹ These are just a few of the mobile legal applications out there that are meant to provide access to individuals who need it the most and who may not have the ability to find and hire their own attorney.

D. *Technologies for Use Across the Curriculum*

One could argue that there are only so many hours in the law school classroom and a limited number of hours to prepare students to be practice-ready and pass the bar exam, thus there is no place for legal technology skills. Because there is so much disagreement about the place of legal technology in law schools and law practice, the ABA has entered the debate by including a technology competency requirement in the Model Rules.⁴⁰ With the ABA's push to get attorneys to think about technology and how it impacts practice, it is even more important for law schools to consider the same issues. The best way to introduce legal technology to law students is to integrate the technologies into the classroom in the least intrusive way by teaching the technologies across the law school curriculum. This will showcase how the technologies solve problems and are relevant to law practice. Some law schools have embraced legal technology in their programming and have created courses either centered around legal technology or containing some facet of law practice competency using technology.⁴¹

First year courses are a great place to introduce legal technology. Legal writing and legal research are discussed separately in this article, so this section will focus on doctrinal and skills courses exclusively. In the first-year curriculum, all law students learn contracts. There are a variety of legal technology providers who offer

it because they lack a personal connection to a lawyer or they simply don't know how to navigate our complex legal system").

38. *Become a U.S. Citizen: Free, Safe, and Simple*, CITIZENSHIPWORKS, <https://www.citizenshipworks.org/> (last visited July 30, 2019). This website functions as part of the Access to Justice project and assists those who want to become a United States citizen. *Id.* It guides them through the steps to becoming a United States citizen and helps them prepare for the naturalization test. *Id.*

39. *Disastr: Mobile Disaster Legal Assistance at Your Fingertips!*, DEVPOST, <https://devpost.com/software/disastr> (last visited Jan. 17, 2020). You can also directly download the app from the website or app store for your mobile device. *Id.*; see also Tim Baran, *Access to Justice Apps*, ROCKET MATTER'S LEGAL PRODUCTIVITY (Jan. 8, 2015), <https://www.rock-etmatter.com/technology/access-justice-apps/> (discussing resources other than Disastr that provide access to justice).

40. See MODEL RULES OF PROF'L CONDUCT r. 1.1 (AM. BAR ASS'N 1983); *Id.* r. 1.1 cmt. 8.

41. See *infra* Appendix A (listing all of the schools that have created certificates or centers around technology).

drafting assistance for contracts including Drafting Assistant on Westlaw from Thomson Reuters,⁴² Contract Companion from Litera Microsystems,⁴³ and Lexis for Microsoft Office on Lexis Advance⁴⁴. Even WordRake, mentioned earlier, can assist with drafting contract language.⁴⁵ Faculty members can use a sample contract for a drafting exercise to showcase the technology available in law practice and to further reinforce the substantive law as well. It's a win-win for law faculty because most students learn by doing. And most of these companies will likely provide free licenses to faculty and students and some will likely even create the assignments for use in the classroom.

Document automation technology can also be introduced in classes like contracts and legal drafting. Using automation software for contract review can save attorneys an incredible amount of time and is generally more efficient with less chance of error.⁴⁶ Automation software relies heavily on artificial intelligence, which is discussed in section V. A few technologies available for use in law schools include Contract Express from Thomson Reuters,⁴⁷ Concord,⁴⁸ HotDocs,⁴⁹ LegalSifter,⁵⁰ and LawGeex.⁵¹ Most of these have an instructor learning curve, but more law librarians have training

42. *Drafting Assistant*, *supra* note 18.

43. *Contract Companion*, LITERA MICROSYSTEMS, <https://www.litera.com/products/legal-contract-companion/> (last visited Oct. 8, 2019) (reducing proofreading time by 90% by correcting hard-to-see errors, such as spacing and brackets, while ensuring accurate and consistent definitions, numbers, phrases, cross references, dates, addresses, names, and monetary values).

44. *Lexis for Microsoft Office*, *supra* note 21.

45. *Editing Software for Professionals*, *supra* note 9.

46. Erçin Aslan, *A.I. Helps Take Automated Contract Analysis to the Next Level*, L. TECH. TODAY (Feb. 20, 2019), <https://www.lawtechnologytoday.org/2019/02/ai-helps-take-automated-contract-analysis-to-the-next-level/>.

47. *Contract Express*, THOMSON REUTERS, <https://legal.thomsonreuters.com/en/products/contract-express> (last visited Oct. 9, 2019). Contract Express allows attorneys to accurately automate and update their legal templates. *Id.* The contracts are generated by filling out web-based forms—also called “questionnaires.” *Id.* The software allows lawyers to automate templates inside Microsoft Word by using markups. *Id.*

48. CONCORD, <https://www.concordnow.com/for-legal/> (last visited Jan. 17, 2020). Concord works by standardizing and automating contract drafts to “increase efficiency and optimize . . . processes, eliminate administrative work, and take the legal team from tactical to strategic.” *Id.* This software program helps attorneys collaborate on documents, both internally and externally, including negotiation with opposing parties. *Id.*

49. HOTDOCS, *supra* note 13.

50. LEGALSIFTER, <https://www.legalsifter.com/> (last visited July 30, 2019). Legal-Sifter uses artificial intelligence to review contracts. *Id.* Upload a contract to LegalSifter, the program works to identify important business and legal concepts and offers advice based on the information discovered. *Id.* LegalSifter works in Word, WordPerfect, and GoogleDocs. *Id.*

51. LAWGEEX, <https://www.lawgeex.com/> (last visited July 30, 2019) (using artificial intelligence to automate contract review by identifying and flagging unacceptable or missing clause, suggests corrections, and automatically approves everything else).

in areas of legal technology so law schools could turn to librarians to help teach this content. In fact, the American Association of Law Libraries has made supporting legal technology a priority for the librarian profession.⁵²

In the upper level courses, legal technology can be useful to introduce context for the practice of law. Practicing law today requires both knowledge of how to use technology to serve clients more effectively and an understanding of how the Model Rules of Professional Conduct impose limits on the design and delivery of legal services. In a professional responsibility course, the topics of the use of social media for marketing, the ethics of cloud computing, data security concerns, privacy concerns, client confidentiality, knowledge management, and storage of client files can all be discussed to teach students how ethics and technology intersect. Law schools must address the intersection of technology and law practice and provide law students with the basic understanding of how to assess the risks and benefits of technology.⁵³ As further evidence of why law schools should pay attention to the ethics of technology, one only has to look at a survey of state ethics opinions.⁵⁴ There are ethics opinions on cloud computing, data security, privacy, content management, email, using social media, virtual law practice, advertising, and the basic rules of competency and technology.⁵⁵ It is

52. *Body of Knowledge [BOK]*, AM. ASS'N L. LIBR., <https://www.aallnet.org/education-training/bok/> (last visited Oct. 9, 2019) (serving as a blueprint for librarian career development, including identifying and promoting the use and education of technology in libraries to then assist and educate others within the law school). Technology is worked into each of the five Body of Knowledge domains, including research and analysis, information management, teaching and training, marketing and outreach, and management and business acumen. *Id.*

53. See MODEL RULES OF PROF'L CONDUCT r. 1.1 (AM. BAR ASS'N 1983); *Id.* r. 1.1 cmt. 8.

54. See generally Ashley Hallene, *Clearing Up the Cloud: What Are Your Responsibilities When Storing Data Online?*, 30 GPSOLO 34, 35-36 (2013) (discussing ABA Model Rule 1.6 and a "lawyer's responsibility to take reasonable steps to protect the electronic information related to the representation of a client"). More than a dozen states have filed opinions addressing "ethical considerations when using cloud storage providers." *Id.* at 36. This includes states such as Alabama, Arizona, California, Iowa, Maine, Massachusetts, Nevada, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Vermont, and Washington. *Id.* Ultimately, the author suggests that the benefits of cloud computing far outweigh the pain of due diligence. *Id.* at 38.

55. Several states have adopted their own version of Model Rule 1.1. See COLO. RULES OF PROF'L CONDUCT r. 1.1 cmt. 8 (COLO. BAR ASS'N 1993) (specifying that attorneys must "keep abreast of changes in . . . communications and other relevant technologies"); FLA. RULES OF PROF'L CONDUCT r. 4-1.1 (FLA. BAR ASS'N 1993) (adding in that competent representation may involve a non-lawyer of established technological competence); LA. RULES OF PROF'L CONDUCT r. 1.1 cmt. 8 (LA. BAR ASS'N 2006) (adopting two statements to the Louisiana State Bar Association Code of Professionalism that promise attorneys will use technology responsibly and stay informed about changes in technology that may affect the practice of law); MICH. RULES OF PROF'L CONDUCT r. 1.1 (Mich. Bar Ass'n 2019) (adding that attorneys must say abreast of "knowledge and skills regarding existing and developing technology that

clear that the legal profession is paying attention to legal technology and law schools must as well.

E-discovery is another legal technology topic that must be taught in law schools. Some schools offer stand-alone e-discovery classes as electives, but the best way to integrate the topic into the curriculum is by teaching it in the context of evidence and civil procedure courses.⁵⁶ E-discovery software providers like Relativity⁵⁷ and Logikcull⁵⁸ offer free licenses to academic institutions complete with training guides and assignments to make it easier to show students what electronic discovery encompasses. Relativity even offers intensive training to professors at its annual conference, Relativity Fest, each year.⁵⁹

are reasonably necessary to provide competent representation”); N.H. RULES OF PROF'L CONDUCT r. 1.1 cmt. 8 (N.H. BAR ASS'N 2016) (adding to their rule that attorneys must stay reasonably informed of the benefits and risks of using technology as compared to a similarly situated attorney); N.Y. RULES OF PROF'L CONDUCT r. 1.1 cmt. 8 (N.Y. BAR ASS'N 2009) (including information on keeping knowledgeable on the benefits and risks associated with technology used to provide services to a client or to store or transmit confidential information); N.C. RULES OF PROF'L CONDUCT r. 1.1 cmt. 8 (N.C. BAR ASS'N 1997) (adding a requirement of keeping updated on changes of the law and being aware of the benefits and risks associated with the technology relevant to the attorney's practice); OKLA. RULES OF PROF'L CONDUCT r. 1.1 cmt. 6 (OKLA. BAR ASS'N 2016); (interpreting the comment differently and creating their own rule that states “[t]o maintain the requisite knowledge and skill, a lawyer should engage in continuing study and education. If a system of peer review has been established, the lawyer should consider making use of it in appropriate circumstances.”); VA. RULES OF PROF'L CONDUCT r. 1.1 cmt. 6 (VA. BAR ASS'N 2018) (adding that “[a]ttention should be paid to the benefits and risks associated with relevant technology”). The following states have adopted the ABA's Model Rule and addition of Comment 8 in their own comments without any additional information: Alaska, Arizona, Arkansas, Connecticut, Delaware, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Massachusetts, Minnesota, Missouri, Montana, Nebraska, New Mexico, North Dakota, Ohio, Pennsylvania, Tennessee, Texas, Utah, Vermont, Washington, West Virginia, Wisconsin, and Wyoming. See Ambrogi, *supra* note 2. Currently, Alabama, California, Washington, D.C., Georgia, Hawaii, Maine, Maryland, Mississippi, Nevada, New Jersey, Oregon, Rhode Island, South Carolina, and South Dakota are the only states that have yet to adopt or create their own ethical rule as it relates to technology and the practice of law. *Id.*

56. Some examples of schools that offer a stand-alone e-discovery course include Cleveland-Marshall College of Law, Vanderbilt Law School, and University of Illinois at Chicago John Marshall Law School. See *infra* Appendix A.

57. *RelativityOne*, RELATIVITY, <https://www.relativity.com/> (last visited July 30, 2019) (creating software that makes e-discovery more manageable, efficient, and insightful while working together to organize collected data on a single platform).

58. LOGIKCULL, <https://www.logikcull.com/> (last visited July 30, 2019) (introducing a cloud-based e-discovery service with an intuitive search function that allows the user to utilize filters, build complex searches, automatically identify privileged documents, apply custom templates, and redact documents).

59. RELATIVITY FEST, <https://relativityfest.com/> (last visited Dec. 2, 2019).

IV. ADAPTING AND UTILIZING ARTIFICIAL INTELLIGENCE AS A TECHNOLOGY

Artificial intelligence is rapidly expanding in the legal world, and law schools need to be on the forefront of this knowledge. Knowing and understanding how artificial intelligence works can help educate students on how to use it to their best ability, rather than rely on it which can lead to shallow research skills. With the release of analytic products available on Westlaw, Lexis, and Bloomberg, it has become easier for law students and practicing attorneys alike to figure out what to expect and how to succeed in the court room. Beyond the major research platforms, there are also several legal research “robots” that exist that utilize and rely on artificial intelligence from start to finish on a research problem. Examples of this include ROSS Intelligence and CaseText’s CARA AI, which will be discussed below.

A. *Legal Research Platforms and Artificial Intelligence*

Litigation Analytics by Westlaw allows users to access data on judges, courts, attorneys, law firms, and case types.⁶⁰ This helps attorneys develop a case strategy by viewing historical insights and determining what judges have relied upon and used in prior cases similar to an attorney’s current case.⁶¹ The filter function allows users to narrow their results from twenty-three different motion types and shows a graph of how the judge typically decides on those motions.⁶² This helps to gain insight into what a judge relies on and how a judge generally rules on a motion, which helps manage client expectations, including the likely outcome and potential cost. Easy-to-read visual charts identify more favorable venue options, what courts take less time to process certain types of cases, and what judges are more likely than not to rule in your favor based on prior rulings on a specific type of motion.⁶³ Beyond venue and judge information, Litigation Analytics also provides information on how judges deal with expert witnesses, including how often a judge accepts expert testimony, the result of expert challenges, and if a judge admits more testimony from plaintiff or defendant experts.⁶⁴

60. *Litigation Analytics*, THOMSON REUTERS, <https://legal.thomsonreuters.com/en/products/westlaw/edge/litigation-analytics> (last visited July 30, 2019).

61. *Id.*

62. *Id.*

63. *Id.*

64. *Id.*

Also helpful is the ability to gain insight into opposing counsel. Litigation Analytics can locate an attorney or entire law firm's docket history, outcomes, and motions filed.⁶⁵ This also assists in hiring decisions, as it can be used to determine if a potential new employee has actual experience in the field the firm is looking to hire in. Students can take all of this information and utilize it to help them when looking for jobs by determining if the firm they want to work for would be a good fit. Learning how to utilize this information in school will better help students once they become practicing attorneys in how to best serve their clients.

Next, LexisNexis launched Lexis Analytics last year, which includes a vast suite of tools that attorneys and students can use to their advantage in the practice of law.⁶⁶ Under the Analytics umbrella, Lexis provides regulatory, transactional, and litigation analytics.⁶⁷ Products such as Legislative Outlook and Intelligize help manage compliance issues, help track regulatory developments, predict when and which laws will pass, and assist in understanding what must be disclosed and how to disclose it.⁶⁸ Intelligize also gives attorneys the ability to access the latest precedent and clauses to assist in managing transactions more efficiently and effectively.⁶⁹ Tools that support an attorney's work in analyzing and comparing the content and frequency of other industry disclosures strengthen the negotiation and creation of better deals.⁷⁰

Most comparable to Westlaw's Litigation Analytics are Lexis products Lex Machina and the newly released Context, which enable attorneys to better formulate winning legal strategies due to knowledge and insight into anticipated behaviors, potential outcomes, and the ability to deliver a powerful winning argument.⁷¹ Context combines Ravel Law, Lexis Advance, and Lexis Litigation

65. *Id.*

66. *Lexis Analytics*, LEXISNEXIS, <https://www.lexisnexis.com/en-us/products/lexis-analytics.page> (last visited July 30, 2019) (leading to hyperlinks for Lexis Advance, Context, Lex Machina, and Intelligize); see also Bob Ambrogi, *LexisNexis Launches Lexis Analytics, Putting a 'Stake in the Ground' to Claim the Legal Analytics Space*, LAW SITES (July 13, 2018), <https://www.lawsitesblog.com/2018/07/lexisnexis-launches-lexis-analytics-putting-stake-ground-claim-legal-analytics-space.html> (discussing LexisNexis's adoption of Intelligize, Lex Machina, and Ravel Law); *LexisNexis Launches Lexis Analytics, an Unmatched Suite of Advanced Tools Designed to Power Data-Driven Law*, LEXISNEXIS (July 12, 2018), <https://www.lexisnexis.com/en-us/about-us/media/press-release.page?id=1531401324925985&y=2018>.

67. Ambrogi, *supra* note 66.

68. *Intelligize*, LEXISNEXIS, <https://www.intelligize.com/> (last visited July 30, 2019).

69. *Id.*

70. *Id.*

71. See *Lex Machina*, LEXISNEXIS, <https://lexmachina.com/> (last visited July 30, 2019); *Context*, LEXISNEXIS, <https://www.lexisnexis.com/en-us/products/context.page> (last visited July 30, 2019).

Profile Suite to pull persuasive language and often cited case law from court opinions, challenges, and motions to assist attorneys in creating and arguing their case in front of a specific judge.⁷² It also helps attorneys find and select the most credible expert witnesses by displaying which experts appear in front of specific judges, when the expert has been challenged, and why the expert's testimony may have been excluded or admitted.⁷³

Last, Bloomberg Law also offers their own version of Litigation Analytics, including information on companies, law firms, judges, and attorneys.⁷⁴ Company analytics allows an individual to search for and see visually, through interactive charts, which firms are representing a specific company, the types of cases the company has been involved in, any legal history, and a jurisdictional breakdown of litigation.⁷⁵ Bloomberg has information on over 70,000 public companies and 3.5 million private companies.⁷⁶ It also allows for reports to be run to compare data.⁷⁷ The analytics for law firms include the companies a firm has represented, a portfolio of the types of cases a firm takes, and a firm's litigation history.⁷⁸ There is information on over 7,000 firms that can be filtered by date, company, case type, and jurisdiction to help identify legal trends.⁷⁹

Much like Westlaw and Lexis, Bloomberg also provides information on judges, such as their history, most cited opinions, how they rule on motions and appeals, average length of cases before a judge, types of cases heard, and recent news.⁸⁰ Attorney analytics has information on over 100,000 attorneys, including contact infor-

72. *Context*, *supra* note 71.

73. *Id.*

74. *Litigation Intelligence Center: Litigation Analytics*, BLOOMBERG L., <https://www.bna.com/litigation-analytics/> (last visited July 30, 2019) (including information on legal data points for companies, law firms, judges, attorneys, and expert witnesses and using machine learning and Bloomberg's database of over 13 million court opinions to highlight "language critical to a court's reasoning, allowing [the user] to quickly find the best language to support legal arguments").

75. *Litigation Intelligence Center: Company Analytics*, BLOOMBERG L., <https://help.bloomberglaw.com/docs/blh-030-litigation-intelligence-center.html#company-analytics> (last visited July 30, 2019).

76. *Id.*

77. *Id.*

78. *Litigation Intelligence Center: Law Firm Analytics*, BLOOMBERG L., <https://help.bloomberglaw.com/docs/blh-030-litigation-intelligence-center.html#law-firm-analytics> (last visited July 30, 2019).

79. *Id.*

80. *Litigation Intelligence Center: Judge Analytics*, BLOOMBERG L., <https://help.bloomberglaw.com/docs/blh-030-litigation-intelligence-center.html#judge-analytics> (last visited July 30, 2019).

mation, firms the individual has worked for, the companies represented, the types of cases litigated, practice area, jurisdiction, and how many cases the attorney has argued.⁸¹

Bloomberg has also developed Points of Law, which incorporates over 13 million court opinions into highlights of popular and critical court holdings and important language.⁸² It provides quick and efficient navigation between relevant and jurisdiction-specific areas of law, related points, and other cases from within the opinions themselves.⁸³ An interactive citation map allows the user to view the most cited cases, the relationships amongst the cases, and then how that area of law has changed over time.⁸⁴ Bloomberg connects from keyword searches to statements of law and provides a defined path that demonstrates the growth and changes within the law itself.⁸⁵

B. Artificial Intelligence and Legal Research Robots

Beyond incorporating artificial intelligence into legal research platforms, there are some programs, called legal research robots, which compute and complete legal research processes without outside assistance.⁸⁶ The implications of this are alarming, as relying solely on a machine to understand legal terms and the connections between them may lead to ethical complications. However, since the technology now exists, it is imperative to be aware of it and how it functions, as to best educate others on its existence and how to adjust and incorporate it into a law school curriculum. Students should be aware that legal research robots exist, and how to have it assist and aid in the research, rather than have it complete the processes for them. Two of the largest legal research robots in the field right now are those provided by ROSS Intelligence and CaseText. Both will be discussed in depth below, to provide a basic understanding of their functions and then how to address questions and education about these robots when questions come up from students.

81. *Litigation Intelligence Center: Attorney Analytics*, BLOOMBERG L., <https://help.bloomberglaw.com/docs/blh-030-litigation-intelligence-center.html#attorney-analytics> (last visited July 30, 2019).

82. *Litigation Intelligence Center: Points of Law*, BLOOMBERG L., <https://help.bloomberglaw.com/docs/blh-030-litigation-intelligence-center.html#points-of-law> (last visited July 30, 2019).

83. *Id.*

84. *Id.*

85. *Id.*

86. See ROSS INTELLIGENCE, <https://rossintelligence.com/> (last visited July 30, 2019).

ROSS Intelligence has stated it is developing a legal research robot system for students, so the introduction of a robot that can complete legal research for students is coming.⁸⁷ Thus, it is imperative to understand how it works and how it functions, as to best teach students, if they choose to use it, to utilize it to their best ability and not rely on it to solely to complete legal research processes. ROSS Intelligence currently has the ability to analyze words using its own natural language processing algorithms, which then provides a relationship between time periods and jurisdiction, and automatically filters requests to the place and date of request.⁸⁸ Once ROSS has the proper date and jurisdiction, it works to retrieve case law that is most relevant to the queried search and detects and narrows down results to passages that are relevant, rather than a case as a whole.⁸⁹

After it retrieves and finds the relevant passages and compiles the cases, it then ranks them with the best cases first.⁹⁰ ROSS's system has the ability to recognize context, syntax, and the meaning between legal documents.⁹¹ Thus, it trains and learns to connect words and phrases that are similar but may not appear on its face to be similar due to the actual meaning of the words.⁹² For example, ROSS knows to recognize and search for the differences between mere and gross negligence and that there are differences between a boy loving a girl and a girl loving a boy due to the grammatical structure of the sentence and how it is phrased despite the fact that the search terms are very similar.⁹³ ROSS also knows that there is a connection between duty and negligence, while a normal search engine would not know that the terms are closely related in a legal search.⁹⁴

Next, CARA AI from CaseText provides a similar process.⁹⁵ CARA stands for Case Analysis Research Assistant and works to

87. *See id.*

88. *See id.*

89. *Id.*

90. *Id.*

91. *Id.*

92. *Id.*

93. *Id.*

94. *Id.*

95. *See generally* CASETEXT, <https://casetext.com/> (last visited July 30, 2019). Casetext is a legal research platform that uses CARA AI, the legal research robot that claims to do the research for you. *Id.*; *see also* Casetext—CARA Legal & Fact Finder, WELCOME AI, <https://www.welcome.ai/tech/legal/casetext-cara-legal-fact-finder> (last visited Nov. 8, 2019) (introducing CARA AI and what services it can provide); Jean O'Grady, *CARA AI: Did Casetext Just "Drop Kick" Keywords out of the Legal Research Process?*, DEWEY B STRATEGIC (May 1, 2018), <https://www.deweybstrategic.com/2018/05/cara-ai-casetext-just-drop-kick-keywords-legal-research-process.html> (highlighting some of the functions of CARA AI).

help an attorney discover relevant cases and briefs based on materials uploaded into CARA's database.⁹⁶ Once uploaded into CARA's database, it takes the information in the memos, briefs, motions, and other legal documents, analyzes it, and returns relevant cases and statutes.⁹⁷ CARA works to match facts, legal issues, and jurisdiction and to return other relevant secondary sources that may be helpful in expanding research on a topic or issue.⁹⁸ CaseText and CARA's database do not just include primary sources such as case law and statutes but also provides briefs, articles, and a proprietary database of collected case holdings.⁹⁹

These artificial intelligence-based research platforms are growing in comprehensive coverage and more are appearing every day. It is necessary to be on the forefront of these platforms and address them with students before they are out in the field and, not understanding the implications of using it, rely on it to their potential detriment. Although these robots claim to solidly complete a search query from start to finish, technology is not yet to the point where an attorney, with ethical obligations, can rely solely upon a robot's work.

V. A SURVEY OF TECHNOLOGY IN LAW SCHOOLS

The role of the lawyer has already changed with advances in technology, and it is inevitable that we are heading toward the age of artificial intelligence. The law offices of the very near future will probably include human, artificial, and hybrid legal talent. Legal technology, including artificial intelligence, is a reality in the workplace and it is time for more law schools to take notice.¹⁰⁰

96. Robert Ambrogi, *Casetext Expands Its CARA Research Assistant, Adding Suggestions of Relevant Briefs*, LAWSITES (May 17, 2017), <https://www.lawsitesblog.com/2017/05/casetext-expands-cara-research-assistant-adding-suggestions-relevant-briefs.html>.

97. See *Casetext—CARA Legal & Fact Finder*, *supra* note 95.

98. See O'Grady, *supra* note 95.

99. See *id.*

100. Some law schools have already begun to take notice. See Tyler Roberts, *20 Most Innovative Law Schools*, PRELAW, Fall 2017, at 27, 27. For example, Stanford University Law school, Brigham Young University's J. Reuben Clark Law School, and Suffolk University Law School have all created design labs. *Id.* These labs focus on creating technology that will make the practice of law easier. *Id.* University of California Hastings College of Law, Albany Law School, and Vanderbilt University Law School have all created dual technology and entrepreneurship programs, with the intent to receive instruction on business development and the technologies that are behind it, so attorneys are best able to not just practice on their own, but help others who are conducting business on their own. *Id.* at 28, 30. Chicago-Kent College of Law at Illinois Institute of Technology, University of Washington School of Law, Northern Kentucky University, Salmon P. Chase College of Law, and University of Miami School of Law all created centers or concentrations on technology and business. *Id.* at 30-31. These centers or concentrations are meant to go beyond traditional classroom methods and instead are giving students hands-on experience in creating and using "technology

We conducted a survey of law school curricula to determine what schools were offering more than just law practice management courses that incorporated technology. A law practice management course that showcases legal technology is the most common course across law schools, but not all law schools even have a practice management legal technology course.¹⁰¹

From a brief survey of law school web sites, six schools offer classes in artificial intelligence.¹⁰² These schools are Case Western, Santa Clara, Connecticut, Michigan State, University of Washington, and University of California Hastings.¹⁰³ Over seventy schools offer some sort of law and legal technology skills course that is similar to the law practice management course mentioned above.¹⁰⁴ Roughly fifteen schools offer some form of a legal technology certificate, with some tied to intellectual property.¹⁰⁵ Over forty schools have clinics or legal technology laboratories that incorporate the skills of using legal technology into the learning experience.¹⁰⁶ A summary of the survey results is offered in Appendix A.

VI. SUGGESTED UNIFORM STANDARD OF TECHNOLOGY COMPETENCE FOR LAW SCHOOLS

With states rapidly adopting legal technology competence standards, law schools must also adhere and conform to these standards. Although standards differ within each state, there are some basic technology skills that should be required in all schools to at least meet a basic level of technology competence. These skills can be worked into specific technology focused courses or integrated into already existing courses such as doctrinal and elective courses.¹⁰⁷

and business processes to solve legal issues.” *Id.* The University of Oklahoma College of Law and Cornell Law School focus on technology and the digital tools available, such as cloud computing, Dropbox, and e-book publishing. *Id.* at 31-32. University of Minnesota Law School and Duke University School of Law both have great programs that focus on access to justice. *Id.* at 32. Elon University School of Law, Valparaiso University School of Law, and Regent University School of Law created new curriculums that focus on experiential learning. *Id.* at 32-33. Last, University of North Texas at Dallas College of Law, Mitchell Hamline School of Law, and Georgetown University Law Center have all worked to create innovative curriculums and programs to make students practice ready, including competency in legal technology. *Id.* at 33.

101. See *infra* Appendix A.

102. *Id.*

103. *Id.*

104. *Id.*

105. *Id.*

106. *Id.*

107. See Ron Dolin & Stephanie Kimbro, *Course Correction: Teaching Tomorrow's Lawyers Legal Technology Skills*, PEER TO PEER MAG., Summer 2014, at 58, 58.

Some suggested skills include how the basic architecture of a law practice works, including the data structure, metrics, and how ethics rules apply to the use of technology, both for attorneys and clients. With the internet becoming so prevalent, law students should have a basic understanding of practice management systems, specifically those that rely on the cloud to keep their data accessible and protected. Law schools should inform students of a varied selection of technology vendors, products, and services, including how to work with and ensure the security of client portal technology. It is particularly important for law students to understand how to evaluate legal technology products and services upon graduating. Evaluation of products and services could encompass an entire course, as it would include topics like how to negotiate terms of the contract; how the product will be effective and assist in law practice; whether the functionality of the product works; what are the expected downtimes, upgrades, and service for the products; what are the file storage requirements; geographic location of the products servers; whether the product will require significant manpower to train and manage the inputs and outputs of the technology; hours of customer service support; costs of implementing the new technology; ease of use; and any ethical considerations.

Students should have an understanding of collaboration technologies, as they may be working simultaneously on a file with another associate or partner. Students should have a basic understanding of the technologies for client development, early case assessment, due diligence, marketing, and branding. Law schools should educate their students on how running a law office or firm works, including payment systems for online billing and fee collection. Last, law schools must teach some more advanced technologies to prepare graduates to practice in the artificial intelligence age, including document automation, e-discovery, cybersecurity, blockchain, artificial intelligence and its impact, data analytics, security infrastructure, coding, assembly tools, and smart contracts.

Law school curricula are very different, and thus, rather than laying out a specific uniform standard of technology compliance to be taught, the suggestions above can be implemented in a multitude of different ways. Schools can create individual technology courses based on the suggested topics, survey courses in law and technology, legal technology certificates, or integrate the topics across the curricula as suggested previously. Having these suggestions adopted by all law schools will ensure some conformity and a basic level of competence, similar to the ABA and state adoption of the

legal technology competency standards, among all law students as they graduate and become practicing attorneys.

VII. CONCLUSION

ABA Standard 1.1, Comment 8 is vague but leaves the door wide open for attorneys and law schools to define what it really means to be technologically competent. Law schools have a great opportunity to take advantage of Comment 8, and the state's unique adoption and interpretation of Comment 8, to teach law students about being technologically competent before they graduate and begin to practice. Incorporating legal technology skills and knowledge into the curriculum of law schools is the first step to better prepare students for the future of law practice and legal services. It could also lead to more opportunities for access to justice initiatives including better access to legal services for the underrepresented and easier access to attorneys and the legal system using advancements in technology. In addition, the adoption of new technologies in the legal profession has and will continue to lead to the creation of new jobs for law graduates.

From the topics and tools explored in this article, it is clear that it is relatively easy for law schools to introduce legal technology products and services. There are an array of products and services available from vendors in the legal technology field, with most willing to give access to their products to law schools for a free or reduced cost.¹⁰⁸ It is vital that law schools take advantage of this and incorporate the suggested standards to graduate students who are technologically familiar with what is out there to ensure they are competent as to how to utilize these technologies in the practice of law. The future of law practice depends on the integration of technology. Future lawyers must let go of their unwillingness to adopt technology and embrace the "ghost in the machine."

108. The ABA TECHSHOW exhibit hall is an excellent place to meet and learn from many legal technology vendors. The vendors exhibiting at the TECHSHOW are often willing to create academic licenses for librarians and law faculty. *See generally* TECHSHOW2020, <https://www.techshow.com/> (last visited Apr. 28, 2020).

Appendix A: Summary of Technology Offerings at Law Schools

ARIZONA STATE UNIVERSITY SANDRA DAY O'CONNOR COLLEGE OF LAW:

Emerging technologies are rapidly transforming both the substance and practice of law in almost every area. Artificial intelligence, precision medicine, big data, autonomous systems, blockchain, 3D printers, drones, mobile apps are just some of the developments that raise novel legal issues with regard to regulation, liability, privacy, intellectual property, individual rights, and how lawyers and professionals practice every day. ASU Law is dedicated to training 21st century lawyers who will have unique expertise and competitive advantage in today's legal world.¹

As science and technology assume central roles in our lives, economy, and legal system, the Center for Law, Science and Innovation is uniquely positioned as an innovator in teaching and applying science, technology and law. From robotics to genetics, neuroscience to nanotech, LSI's innovative projects and programs constantly evolve to address challenging governance and policy issues through cutting-edge curriculum, practical experience, conferences and workshops, research projects, and scholarship.²

UNIVERSITY OF CALIFORNIA BERKELEY SCHOOL OF LAW:

The Samuelson Clinic engages in client advocacy, policy-based research and academic scholarship in many areas of technology-related law. Faculty and students working with the Clinic have represented clients in legal matters before the Federal Communications Commission, the Federal Elections Commission, the Sixth, Ninth and 11th Circuit Courts of Appeals, the California Supreme Court, the U.S. Supreme Court, the California Assembly and Senate, and in technical standard-setting

1. *Science and Technology Law*, ARIZ. ST. U. SANDRA DAY O'CONNOR C. LAW, <https://law.asu.edu/focus-areas/law-technology> (last visited Sept. 19, 2019).

2. *Center for Law, Science and Innovation*, ARIZ. ST. U. SANDRA DAY O'CONNOR C. LAW, <https://law.asu.edu/centers/law-science-innovation> (last visited Jan. 21, 2020).

matters before the Internet Engineering Task Force and the Organization for the Advancement of Structured Information Standards. Samuelson Clinic students and faculty have written and contributed to reports on behalf of clients, on matters of voter privacy, digital rights management technology, the relation of intellectual property laws to the manufacture and import of HIV anti-retroviral medications, the privacy issues in electronic benefit systems used to deliver financial aid to the poor, and the effect of the Digital Millennium Copyright Act on speech, competition and innovation. In addition, the Samuelson Clinic has collaboratively developed an online resource center, Chilling Effects, to assist the public in dealing with a variety of legal issues arising on the internet, including copyright, trademark, and patent infringement. For further information on these projects and copies of some of the reports and briefs produced by the Clinic, please explore this section.³

BOSTON UNIVERSITY SCHOOL OF LAW:

The BU/MIT Technology Law Clinic (formerly known as the BU/MIT Technology & Cyberlaw Clinic) is a *pro bono* service for students at MIT and BU who seek legal assistance with their innovation-related academic and extracurricular activities. Boston University School of Law students, under attorney supervision, provide counseling and representation to students with their academic- and innovation-related projects, activities, experiments, and ventures.

The TLC is part of the BU/MIT Entrepreneurship, Intellectual Property & Cyberlaw Program, a collaboration between Boston University School of Law and the Massachusetts Institute of Technology. Along with its companion clinic—the Startup Law Clinic, which provides legal advice to startups coming out of MIT and BU—BU Law students are given an opportunity to work on cutting-edge issues of technology law, while students at both universities can obtain legal guidance and assistance with their research.⁴

3. *Projects and Cases*, BERKELEY L. U. CALIFORNIA, <https://www.law.berkeley.edu/experiential/clinics/samuelson-law-technology-public-policy-clinic/projects-and-cases/> (last visited Jan. 21, 2020).

4. *Protecting Innovation by Supporting Student Research and Discovery*, BU SCH. LAW, <https://sites.bu.edu/techlaw/> (last visited Sept. 21, 2019).

CALIFORNIA WESTERN SCHOOL OF LAW SAN DIEGO:

The center promotes public education, specifically the education of young lawyers, in the fast-growing field of telecommunications law. Students can graduate prepared for the cutting edge of entrepreneurship, transactional law, transborder licensing, intellectual property, informational technology, biofuels, and telecommunications. In addition, the Center partners with government agencies and organizations to provide students with practical experience in law, policy, and business.⁵

YESHIVA UNIVERSITY BENJAMIN N. CARDOZO SCHOOL OF LAW:

The Tech Startup Clinic provides high-potential startups pro bono legal services. The clinic guides startups through entity formation, funding questions, intellectual property issues, commercialization strategies, and operational and employment matters.

Students participating in the clinic develop practical skills. They directly counsel and work with startup founders. Students draft contracts, legal memoranda and work on policy issues. After clinic participation, students receive assistance finding externships or internships in-house with New York City startups.⁶

CASE WESTERN RESERVE UNIVERSITY SCHOOL OF LAW:

The Spangenberg Family Foundation, a Dallas-based philanthropic organization established by the family of Case Western Reserve University School of Law alumnus Erich Spangenberg, committed \$3 million to endow the university's Intellectual Property (IP) Center. The newly endowed Spangenberg Center for Law, Technology & the Arts will allow more opportunities for students to gain interdisciplinary, practical experience in the rapidly growing field of IP law. The pledge also provides faculty members and visiting fellows more resources to participate in important IP research.

5. *Clinics and Programs: Intellectual Property Technology and Telecommunications Law Center*, CAL. W. SCH. LAW, <https://www.cwsl.edu/clinics-and-programs> (last visited Sept. 26, 2019).

6. *Tech Startup Clinic*, YESHIVA U. BENJAMIN N. CARDOZO SCH. LAW, <https://cardozo.yu.edu/tech-startup-clinic> (last visited Jan. 21, 2020).

The hallmark of the IP Center is Fusion, a program in which JD, MBA and PhD science students collaborate to explore a new technology, build a business strategy around it and provide the legal assistance—including IP protection—to commercialize the venture. Fusion students then transition into the school's new IP Venture Clinic, where they handle real cases and represent startup ventures, mostly in Northeast Ohio. The multi-million dollar commitment, among the largest the law school has ever received, will allow the clinic to expand its reach outside the region.⁷

ILLINOIS INSTITUTE OF TECHNOLOGY CHICAGO-KENT COLLEGE OF LAW:

With exponential development of technologies, the need for professionals trained at the complex intersection of science and law is greater than ever. The insatiable expansion of technology across an intricately connected globe raises new questions of ethics and legality. The Institute for Science, Law & Technology (ISLAT), a not-for-profit, cross-disciplinary collaborative effort at the Illinois Institute of Technology, trains leaders and provides in-depth, thoroughly-researched answers to the toughest issues that arise at the edges of science and law.⁸

LL.M. Program in Legal Innovation + Technology, which leads to an Master of Laws (LL.M.) degree in Legal Innovation and Technology, provides a one-year, full-time course of study (24 minimum total credit hours) with an emphasis on how emerging technologies, big data, and innovation in the legal industry enhance and impact the practice of law and the delivery of legal services. The program may also be taken on a part-time basis for U.S. citizens or U.S. permanent residents.⁹

7. *Spangenberg Family Foundation to Endow Intellectual Property Law Center at School of Law*, DAILY (Sept. 5, 2014), <https://thedaily.case.edu/spangenberg-family-foundation-to-endow-intellectual-property-law-center-at-cwru-school-of-law/>.

8. *Institute for Science, Law and Technology*, CHI.-KENT C.L. ILL. INST. TECHNOLOGY, <https://www.kentlaw.iit.edu/institutes-centers/institute-for-science-law-and-technology> (last visited Sept. 26, 2019).

9. *LL.M. Program in Legal Innovation + Technology*, CHI.-KENT C.L. ILL. INST. TECHNOLOGY, <https://www.kentlaw.iit.edu/academics/llm-programs/legal-innovation-technology> (last visited Sept. 26, 2019).

**CLEVELAND STATE UNIVERSITY CLEVELAND-MARSHALL
COLLEGE OF LAW:**

Cleveland-Marshall's innovative Cybersecurity and Data Privacy concentration takes an integrative approach to education, preparing students to understand the technical and business dimensions of cybersecurity and privacy as well as the legal and regulatory frameworks.¹⁰

A structured slate of courses and hands-on learning opportunities prepare students to work in the fast-growing fields of cybersecurity and data privacy. The increasing number and sophistication of cyberattacks on private and public organizations combined with a growing and complex array of data security and privacy regulations at the state, national and international levels has made data security and privacy protection one of the hottest new fields in the legal profession. Traditional law firms are adding or expanding data security and privacy practices and entirely new job categories requiring legal expertise are emerging as more organizations recognize the need to proactively manage their data security and compliance risks. The Cybersecurity and Data Privacy Concentration is a key component of the Center for Cybersecurity and Privacy Protection housed at Cleveland-Marshall. The Center takes a cutting-edge, interdisciplinary approach to address privacy and cyber-risk management concerns.¹¹

UNIVERSITY OF COLORADO BOULDER LAW SCHOOL:

The Samuelson-Glushko Technology Law & Policy Clinic (TLPC) offers students an interdisciplinary, hands-on opportunity to develop and execute strategic advocacy initiatives aimed at making an impact on cutting-edge technology policy issues in the public interest. Legal practice before administrative bodies is a critical component of many attorneys' practices. Under the supervision of the TLPC Director, TLPC students advocate before state and federal administrative agencies such as the Federal Communications Commission, Federal Trade Commission, U.S. Copyright Office, U.S. Patent and Trademark Office, Colorado Public Utilities Commission, and federal

10. *Cybersecurity and Data Privacy Certificate*, CLEV.-MARSHALL C. LAW, <https://www.law.csuohio.edu/academics/curriculum/concentrations/cybersecurityprivacy> (last visited Jan. 21, 2020).

11. *Id.*

appellate courts on a variety of real telecommunications, intellectual property, privacy, accessibility, and other policy and regulatory matters with substantial technology dimensions.¹²

Colorado Law has developed one of the nation's most comprehensive legal programs oriented around information technology. Technology lawyers address interesting policy challenges and novel legal issues, and rank among the most satisfied within the legal profession. Colorado Law is the right place at the right time for those interested in exploring the frontiers of entrepreneurial law, technology policy, and intellectual property.¹³

THE CATHOLIC UNIVERSITY OF AMERICA COLUMBUS SCHOOL OF LAW:

LTI offers an enhanced curriculum to students interested in exploring the many important legal questions and policy debates surrounding evolving technologies. The curriculum will equip students with a well-rounded foundation while also allowing them to pursue a particular area of interest, including communications / data privacy law and intellectual property law. LTI students will gain valuable practical experience through externships in government, industry, public interest organizations, and law firms.¹⁴

To earn an LTI certificate, students must complete a rigorous, yet flexible, course of study that provides students with a well-rounded foundation as well as specialized training in communications/data privacy law or intellectual property law.¹⁵

12. *Samuelson-Glushko Technology Law & Policy Clinic*, U. COLO. BOULDER COLO. L., <https://www.colorado.edu/law/academics/clinics/samuelson-glushko-technology-law-policy-clinic> (last visited Sept. 26, 2019).

13. *Technology and Intellectual Property Law*, U. COLO. BOULDER COLO. L., <https://www.colorado.edu/law/academics/areas-study/technology-and-intellectual-property-law> (last visited Sept. 26, 2019).

14. *Law and Technology Institute (LTI)*, CATH. U. AM. COLUMBUS SCH. LAW, <https://www.law.edu/academics/certificate-programs/law-and-technology-institute/index.html> (last visited Sept. 26, 2019).

15. *Curriculum (LTI)*, CATH. U. AM. COLUMBUS SCH. LAW, <https://www.law.edu/academics/certificate-programs/law-and-technology-institute/law-technology-institute-curriculum.html> (last visited Sept. 26, 2019).

DEPAUL UNIVERSITY COLLEGE OF LAW:

The TIP Field Clinic, a successor to one of the first intellectual property clinics in the country, will enable you to gain practice experience in IP or Technology law. As the law school's first Field Clinic, students will work off-site with law firms and partner organizations specifically chosen for their ability to expose you to intellectually challenging and exciting legal issues. Clients could include entrepreneurs, musicians, artists, authors and inventors who need assistance in protecting their creations and businesses. The TIP Field Clinic is an integral component of the College of Law's nationally ranked Intellectual Property program.¹⁶

EMORY UNIVERSITY LAW SCHOOL:

Technological Innovation: Generating Economic Results, or TI:GER, is a nationally recognized collaboration between Emory Law and the Georgia Institute of Technology. TI:GER brings together graduate students in law, business, science, and engineering to work on start-up projects to transform highly promising research into economically viable projects.¹⁷

The TI:GER program combines classroom instruction, team-based activities, externships, and networking opportunities into a total educational experience. Emory Law students provide a crucial legal perspective to their TI:GER teams, helping bring to the forefront ideas and inventions that can change the world and save lives.¹⁸

GEORGETOWN LAW:

The Communications & Technology Law Clinic works on cases involving the intersection of law and technology. Virtually every aspect of media and telecommunications law has been affected by the digital revolution. By representing non-profit organizations, the clinic works to ensure that technologies are

16. *Technology Intellectual Property Clinic (TIP Field Clinic)*, DEPAUL C. LAW, <https://law.depaul.edu/academics/experiential-learning/legal-clinics/technology-intellectual-property/Pages/default.aspx> (last visited Sept. 26, 2019).

17. *TI:GER® Program*, EMORY U. SCH. LAW, <http://law.emory.edu/academics/experiential-and-practical-training/technological-innovation-tiger.html> (last visited Jan. 21, 2020).

18. *Id.*

used to serve rather than harm underrepresented groups, including people of color, persons with disabilities, and children.

The clinic represents nonprofit organizations working to adopt, enforce, and defend laws and policies that promote the use of technologies to serve the public interest. The clinic practices before the Federal Communications Commission (FCC), the Federal Trade Commission (FTC), other federal agencies, and federal appellate courts. The clinic has existed as part of Georgetown's Institute for Public Representation since 1980.¹⁹

The Institute for Technology Law & Policy at Georgetown Law is training the next generation of lawyers and lawmakers with deep expertise in technology law and policy. The Institute provides a uniquely valuable forum in Washington, DC for policy-makers, academics and technologists to discuss the most pressing issues and opportunities in technology law today.²⁰

HARVARD LAW SCHOOL:

The Cyberlaw Clinic, based at Harvard's Berkman Klein Center for Internet & Society, provides high-quality, pro-bono legal services to appropriate clients on issues relating to the Internet, new technology, and intellectual property. Students enhance their preparation for high-tech practice and earn course credit by working on real-world litigation, client counseling, advocacy, and transactional / licensing projects and cases. The Clinic strives to help clients achieve success in their activities online, mindful of (and in response to) existing law.²¹

HOFSTRA UNIVERSITY MAURICE A. DEANE SCHOOL OF LAW:

The Law, Logic & Technology Research Laboratory is dedicated to inventing and making available tools that make legal practice and legal education more effective and more efficient. This effort includes: First, combining our logic investigations with state-of-the-art technology to create tools that can increase the efficiency of decision-making processes in society;

19. *Communications & Technology Law Clinic (IPR)*, GEO. L., <https://www.law.georgetown.edu/experiential-learning/clinics/communications-technology-law-clinic-ipr/> (last visited Oct. 3, 2019).

20. *Institute for Technology Law & Policy*, GEO. L., <https://www.georgetowntech.org/> (last visited Oct. 3, 2019).

21. *Cyberlaw Clinic*, HARV. L. SCH., <https://hls.harvard.edu/dept/clinical/clinics/cyber-law-clinic/> (last visited Oct. 3, 2019).

second, creating methods for training legal decision-makers and legal practitioners, as well as researchers and students, in the use of logic skills; and third, developing management structures for coordinating teams of researchers, and for ensuring the quality of their research products.²²

INDIANA UNIVERSITY BLOOMINGTON MAURER SCHOOL OF LAW:

Although cybersecurity issues are often thought of as primarily technical, law and policy are critically important skills in this arena. Cybersecurity law and policy are only beginning to develop and the demand for cybersecurity professionals continues to increase in the private and public sectors at the local, national, and international levels. A few examples illustrate the breadth and need for individuals with a law and policy background in cybersecurity. Consumer risks are created by the Internet of Things. Safety risks are created by self-driving vehicles. Democratic risks are created by various threats to elections. National security risks are created by threats to technology tied to critical infrastructure.²³

To address these risks, society requires not only individuals with technological expertise, but also individuals with cybersecurity law and policy background to help establish the proper legal frameworks for responding to the ways that technology is disrupting existing norms and creating new challenges. Cybersecurity law and policy frameworks in this ever-shifting field.²⁴

UNIVERSITY OF ILLINOIS AT CHICAGO JOHN MARSHALL LAW SCHOOL:

No matter what type of law you are interested in or what direction your career make take, your clients and you will be confronted by issues involving technology and privacy every day. Knowing the law and underlying policies is crucial to your employability. Our joint JD/LLM in Information Technology & Privacy Law offers current John Marshall JD candidates an

22. *Law, Logic & Technology Research Laboratory*, HOFSTRA L., <https://law.hofstra.edu/facultyandresearch/centers/lltlab/> (last visited Jan. 21, 2020).

23. *Graduate Certificate in Cybersecurity Law and Policy*, IND. U. BLOOMINGTON MAUER SCH. LAW, <https://law.indiana.edu/academics/cyber-certs/law-and-policy.shtml> (last visited Jan. 28, 2020).

24. *Id.*

opportunity to develop specialized knowledge and gain a marketable expertise in today's practice environment.²⁵

LOYOLA UNIVERSITY NEW ORLEANS COLLEGE OF LAW:

The College of Law offers a Law, Technology, and Entrepreneurship certificate to meet the increased demand in the job market for trained lawyers who advise entrepreneurs. Law students completing the certificate can also graduate equipped with the skills needed to become entrepreneurs themselves.²⁶

MARQUETTE UNIVERSITY LAW SCHOOL:

The nationally-recognized Marquette University Intellectual Property and Technology Program fosters a rich learning environment dedicated to understanding intellectual property and technology law.²⁷

The program is anchored by students who are committed to becoming intellectual property lawyers. Students choose from over 15 different courses in the program, permitting them to develop course sequences tailored to their individual interests.²⁸

MICHIGAN STATE UNIVERSITY COLLEGE OF LAW:

Historically, attempting to increase access to legal services has meant pouring resources into existing systems. But that approach has not worked. More recently, the focus has shifted to technology. We also leverage technology, but recognize that poorly defined processes, standards, and metrics lead to ineffective implementation. Understanding existing processes and how they produce (or fail to produce) value for clients creates a pathway to improving legal-service delivery. This way, we can measurably improve access with fewer resources.

25. *Center for Intellectual Property, Information & Privacy Law*, UIC JOHN MARSHALL L. SCH., <https://jmls.uic.edu/academics/ip-privacy/jd-llm-it-privacy-law.php> (last visited Oct. 3, 2019).

26. *Certificate in Law Technology and Entrepreneurship*, LOY. U. NEW ORLEANS C. LAW, www.law.loyno.edu/certificate-law-technology-and-entrepreneurship (last visited Oct. 3, 2019).

27. *Intellectual Property & Technology Law*, MARQ. U. L. SCH., <https://law.marquette.edu/programs-degrees/intellectual-property-technology-law> (last visited Oct. 3, 2019).

28. *Id.*

The Legal RnD Lab at MSU Law's Center for Law, Technology & Innovation ("CLTI") believes that innovation through legal research and development will bring the law to everyone.²⁹

MITCHELL HAMLINE SCHOOL OF LAW:

As the world becomes more digitally interconnected and technologically driven, businesses and consumers are increasingly vulnerable to cyber threats. Regardless of your industry, the security of sensitive information is a priority. This program will teach you more than how to maintain a secure system. You will also learn how to effectively manage risk, and how to quickly and decisively respond to threats from some of the nation's foremost cybersecurity experts.³⁰

NEW YORK LAW SCHOOL:

The Innovation Center for Law and Technology is a cross-disciplinary program that addresses technology's out-sized impact on law and society. Our doctrinal fields of study include intellectual property (including copyright, patent, and trademark law), privacy, data security, and internet law. The Innovation Center also focuses on legal and policy issues in information technology, fashion, media, entertainment, publishing and associated industries.³¹

NEW YORK UNIVERSITY LAW:

Territorial boundaries and distinctions between domestic and international, private and public, technical and political are becoming increasingly more blurred by digital interconnectivity, proliferation and collection of data, increasing prominence of transnational technology companies in public domains, technological innovations such as artificial intelligence and blockchain pioneered by private actors but increasingly used by public bodies for a wide range of purposes, and creation of digitally

29. *Center for Law, Technology & Innovation*, MICH. ST. U. C. LAW, <https://www.law.msu.edu/lawtech/index.html> (last visited Oct. 3, 2019).

30. *Cybersecurity and Privacy Law Certificate*, MITCHELL HAMLINE SCH. LAW, <https://mitchellhamline.edu/cybersecurity/> (last visited Oct. 16, 2019).

31. *Innovation Center for Law and Technology*, N.Y. L. SCH., <https://www.nyls.edu/innovation-center-for-law-and-technology/> (last visited Oct. 3, 2019).

and physically inter-connected spaces that facilitate flows of funds, goods, services, and information.³²

Technological advances are driving greater social, economic, and political change—from access to information, health care, and entertainment to increased surveillance by law enforcement agencies to impacts on the environment, education, and commerce. These advances, however, raise increasingly critical and complex questions about privacy, consumer rights, free speech, and intellectual property are becoming increasingly critical and complex. The Technology Law and Policy Clinic is a semester-long, 6-credit course that focuses on the representation of individuals, nonprofits, and consumer groups who are engaged with these questions from a public interest point-of-view. It involves a mixture of fieldwork and seminar discussion ranging from technology law and policy to the ethical challenges of representing public-interest organizations.³³

NORTHERN KENTUCKY UNIVERSITY CHASE COLLEGE OF LAW:

The Law + Informatics Institute provides critical interdisciplinary research, coursework, and community outreach on issues involving media and information systems and emerging technologies across all areas of law. The Institute works with all fields within the legal profession to explore the legal and societal consequences resulting from creation, acquisition, aggregation, security, manipulation, and exploitation of data.

The Law + Informatics Institute explores the collection of rules, principles and regulations involving the collection, classification, storage, retrieval, and dissemination of recorded knowledge. The Institute encourages thoughtful public discourse on the regulation and use of information systems, business innovation, and the development of best business practices regarding data systems in business, health care, media, entertainment, and the public sector.³⁴

32. *Guarini Global Law & Tech*, N.Y.U. L., <https://www.guariniglobal.org/> (last visited Oct. 3, 2019).

33. *Technology Law and Policy Clinic*, N.Y.U. L., <https://www.law.nyu.edu/academics/clinics/semester/technologylawandpolicy> (last visited Oct. 3, 2019).

34. *Law + Informatics Institute*, N. KY. U., <https://chaselaw.nku.edu/experiences/centers-and-institutes/lawinformatics.html> (last visited Oct. 3, 2019).

**NOVA SOUTHEASTERN UNIVERSITY SHEPARD BROAD COLLEGE
OF LAW:**

The NSU Shepard Broad College of Law offers a concentration in Intellectual Property, Technology and Cybersecurity Law, permitting students to obtain recognition for their concentration in intellectual-property-law-related studies. Completion of the requirements for this concentration will lead to a notation on the qualified student's transcript and a certificate suitable for framing indicating the student's focus, interest and specialized training in this area.³⁵

OHIO STATE UNIVERSITY LAW SCHOOL:

Due to recent scientific and technological advances, lawyering in the digital age has become increasingly important and complex.

Students interested in intellectual property may study the principal forms of protection: copyright, trademark, and patent law. Moritz also offers multiple advanced intellectual property courses focused on issues related to the Internet and technology and protecting both copyright and ownership of material as well as privacy.³⁶

SANTA CLARA UNIVERSITY LAW:

Our intellectual property and high tech curriculum is one of the largest in the country. Due to its breadth and depth, students can create a highly personalized course of study.³⁷

SOUTHERN METHODIST UNIVERSITY DEDMAN SCHOOL OF LAW:

SMU Dedman School of Law's Tsai Center for Law, Science and Innovation is a research-focused academic center exploring how law and policy affect scientific research and discovery as well as the development and commercialization of new technol-

35. *JD Intellectual Property, Technology and Cybersecurity Law Concentration*, NOVA SE. U. SHEPARD BROAD C. LAW, <https://www.law.nova.edu/jd-program/ip-tech-cybersecurity-law.html> (last visited Oct. 3, 2019).

36. *Intellectual Property and Technology Law*, OHIO ST. U. MORITZ C. LAW, <https://moritzlaw.osu.edu/admissions/jd/areas-of-study/intellectual-property-and-technology-law/> (last visited Oct. 3, 2019).

37. *About the High Tech Law Institute*, SANTA CLARA L., <https://law.scu.edu/hightech/> (last visited Oct. 3, 2019).

ogies. The Tsai Center also explores the converse—how scientific discoveries and new technologies affect ethics, society, private industry, and governmental institutions and agencies. The Tsai Center presents education programming, facilitates academic research, and provides educational opportunities that engage students and the academic and business communities interested in law, science and innovation. In short, the Tsai Center exists to engage the public, scholars, students, scientists, policy.³⁸

STANFORD LAW SCHOOL:

The Stanford Program in Law, Science & Technology (LST) combines the resources of Stanford Law School—including renowned faculty experts, alumni practicing on the cutting edge of technology law, technologically savvy and enthusiastic students, and a location in the heart of Silicon Valley—to address the many questions arising from the increasingly prominent role that science and technology play in both national and global arenas. The program acts to help students, legal professionals, businesspeople, government officials, and the public at large to identify those questions and find innovative answers to them.³⁹

SUFFOLK UNIVERSITY BOSTON LAW SCHOOL:

The Legal Innovation and Technology Concentration is designed to prepare students for this new and evolving legal marketplace by providing students with the knowledge and skill set that 21st century lawyers need.⁴⁰

The Legal Innovation and Technology (LIT) Lab is an experiential program combining the vision of our Legal Innovation and Technology Institute with the pedagogy and legal services mission of our Clinical Programs. The Lab allows students to work as part of a consultancy and research & development

38. *About the Tsai Center*, SMU DEDMAN SCH. LAW, <https://www.smu.edu/Law/Centers/Tsai-Center-for-Law-Science-and-Innovation/AbouttheTsaiCenter> (last visited Jan. 21, 2020).

39. *Stanford Program in Law, Science & Technology*, STANFORD U. L. SCH., <https://law.stanford.edu/stanford-program-in-law-science-technology/#slsnav-programs-and-centers> (last visited Jan. 21, 2020).

40. *Legal Innovation & Technology*, SUFFOLK U. BOS. L. SCH., <https://www.suffolk.edu/law/academics-clinics/what-can-i-study/legal-innovation-technology> (last visited Oct. 3, 2019).

(R&D) shop focused on legal tech and data science work. The Lab serves both non-profit and for-profit clients, with the latter subsidizing the former, when appropriate. Active areas of research involve, but are not limited to, the construction of expert systems/guided interviews (e.g., chatbots) and algorithmic codification of tacit knowledge (i.e., training computers to replicate human decisions).⁴¹

SYRACUSE UNIVERSITY COLLEGE OF LAW:

For more than 25 years, the Innovation Law Center (ILC) [formerly the Technology Commercialization Law Center] has offered a unique, interdisciplinary experiential learning program for students interested in the commercial development of new technologies.⁴²

UNIVERSITY OF CALIFORNIA BERKELEY LAW:

The Samuelson Law, Technology & Public Policy Clinic is the leading clinical program in technology law and the public interest. Through hands-on, real-world work, the Clinic trains law and graduate students in public interest work on emerging technologies, privacy, intellectual property, free speech, consumer and citizen interests in technology deployment and design, creativity, innovation, and other information policy issues. In this work, the Clinic pursues a dual mission: to support the public's interest in technology law and policy, and to teach law students through real-world work, with live clients, on cutting-edge policy issues.⁴³

UNIVERSITY OF CALIFORNIA HASTINGS COLLEGE OF THE LAW SAN FRANCISCO:

LexLab, at UC Hastings Law, is an innovation hub for emerging legal technologies. We are building three areas of focus: building a concentration/ certificate in law and technology for students; setting up an incubator for legal tech startups on

41. *Legal Innovation & Technology Lab*, SUFFOLK L. SCH., <https://suffolklitlab.org/> (last visited Oct. 3, 2019).

42. *Innovation Law Center*, SYRACUSE U. C. LAW, <http://law.syr.edu/academics/centers-institutes/new-york-state-science-and-technology-center-technology-commercializatio-la/> (last visited Oct. 3, 2019).

43. *Samuelson Law, Technology & Public Policy Clinic*, BERKELEY L. U. CALIFORNIA, <https://www.law.berkeley.edu/experiential/clinics/samuelson-law-technology-public-policy-clinic/> (last visited Oct. 3, 2019).

campus, a space where our students and alumni can interact with entrepreneurs and provide support in various ways; and hosting regular large and small scale community events.⁴⁴

THE UNIVERSITY OF AKRON SCHOOL OF LAW:

The certificate program is open to all JD students. To enter the program a student must take the Fundamentals of Intellectual Property course at the first available time in the student's schedule (usually first semester of 2nd year for full-time/3rd year for part-time). A student may be admitted provisionally to a certificate program pending meeting this prerequisite. A student must meet with the IP Center Director for course planning, and obtain signatures approving the application toward admission into the Certificate program.⁴⁵

UNIVERSITY OF BALTIMORE SCHOOL OF LAW:

The Center for the Law of Intellectual Property and Technology (CLIPT) was founded in to promote research, education and legal practice in three intertwined areas of law. One aspect of CLIPT's focus is intellectual property law, including copyright law, patent law, trade secret law and trademark law. These areas of law support the discovery of new inventions, the production of new creative works and the generation of new products, services and businesses. The second facet of CLIPT's focus is to examine and publicize legal issues stemming from the use of cutting-edge technologies. These issues often cut across multiple areas of law. For example, issues related to DNA are important in criminal law, property law, privacy law and patent law. Finally, CLIPT supports the use of technology to understand the law through endeavors such as the Supreme Court Mapping Project.⁴⁶

44. *About Us*, LEXLAB UC HASTINGS C.L.S.F., <http://lexlab.uchastings.edu/> (last visited Jan. 21, 2020).

45. *Certificates at Akron Law: Certificate in Intellectual Property Law*, U. AKRON SCH. LAW, <https://www.uakron.edu/law/curriculum/certificates.dot#ip> (last visited Oct. 3, 2019).

46. *Center for the Law of Intellectual Property and Technology*, U. BALT., <http://law.ubalt.edu/centers/clipt/index.cfm> (last visited Oct. 3, 2019).

UNIVERSITY OF CALIFORNIA IRVINE LAW:

In the UCI Intellectual Property, Arts, and Technology Clinic, students work to support innovation and expression in the digital age by advising and representing clients on a range of matters dealing with copyright, patent, privacy and media law, among other areas. Clients include artists, entrepreneurs, filmmakers, nonprofits, policymakers, and scientists. Through this work, clinic students gain important legal skills while examining the role of the public interest in intellectual property and technology law.⁴⁷

UNIVERSITY OF CONNECTICUT SCHOOL OF LAW:

The Program in Intellectual Property at the University of Connecticut prepares students to participate in this new information economy. It draws upon the strength of the Law School as the leading public law school in the Northeast United States; the school's commitment to international law, financial services and insurance law; and New England's and Connecticut's significant place in the new economy.⁴⁸

UNIVERSITY OF DAYTON SCHOOL OF LAW:

The University of Dayton School of Law was ranked among the nation's top 30 law schools in the country when it comes to legal technology in the fall 2018 issue of the *National Jurist*. UDSL was ranked 16th in the country.

The School of Law recognized early on the importance of Legal Technology to law students, starting its Program in Law and Technology more than 25 years ago. The program was one of the first of its kind in the country.⁴⁹

47. *Intellectual Property, Arts, and Technology Clinic*, UCI L., <https://www.law.uci.edu/academics/real-life-learning/clinics/ipat.html> (last visited Oct. 3, 2019).

48. *Intellectual Property Certificate (JD)*, U. CONN. SCH. LAW, <https://www.law.uconn.edu/academics/jd-certificate-programs/intellectual-property-certificate-jd#> (last visited Oct. 3, 2019).

49. *University of Dayton School of Law Among Best Schools for Legal Technology*, U. DAYTON (Feb. 27, 2019), <https://udayton.edu/blogs/daytondocket/2018/11/best-tech-schools.php>.

UNIVERSITY OF DETROIT MERCY LAW:

The Intellectual Property Law Institute (I.P.L.I.) was created in 1987 through the efforts of the State Bar of Michigan and the law faculties of the University of Detroit Mercy, Wayne State University and the University of Windsor. IPLI is dedicated to providing basic knowledge and advanced legal education and furthering knowledge, scholarship and research in the law governing the richly diverse fields of intellectual property: patents, copyrights, trademarks, trade secrets and know-how, computers and related technology, communications and media, entertainment, technology transfer, trade regulation and the arts.⁵⁰

UNIVERSITY OF HOUSTON LAW CENTER:

The healthcare industry is in a period of profound, technology-driven restructuring sparked by game-changing advances in the life sciences and information technology, creating novel legal challenges in diverse areas like data privacy, creation of sustainable data infrastructures to ensure the safety of genomic technologies, and clinical translation of precision medicine. The UH Center for Biotechnology and Law, under the direction of Dr. Barbara J. Evans, Ph.D., J.D., LL.M., was established in 2007 as part of the Health Law & Policy Institute. In 2014, it expanded its scope to encompass non-medical biotechnologies such as genetically modified foods and industrial biotechnologies.

Since 2007, the center has developed several new biotechnology-themed courses to position UH Law grads for success in the expanding local and national biotechnology job markets. All biotechnology-related courses are practice-oriented and are cross-listed with the Law Center's leading programs Health Law, Intellectual Property and Information Law (IPIL), and Energy, Environment, and Natural Resources (EENR), making it possible for students to develop key skills in life sciences and biotech law while pursuing J.D. or LL.M. programs in any of those fields. Examples of career paths taken by past graduates of UH's biotechnology-related courses include working in U.S. and international law firms representing pharmaceutical and

50. *Intellectual Property Law Institute (IPLI)*, DET. MERCY L., <http://www.law.udmercy.edu/students/student-services/IPLI%202017-2018%20Final.pdf> (last visited Oct. 3, 2019).

medical device industry clients, in the Silicon Valley health information technology/biotechnology industry, in academic research institutions, and in the research administration, privacy compliance, technology licensing, and legal departments of leading healthcare institutions and academic medical centers in Texas. The biotechnology field is quite diverse and offers opportunities for students with non-scientific backgrounds, such as bioethics and liberal arts, as well as for those with prior interests in engineering and sciences.⁵¹

UNIVERSITY OF IDAHO COLLEGE OF LAW:

The law of intellectual property exists to promote technological innovation and cultural creativity, which are major drivers of both domestic and global economic growth. According to the United States Patent and Trademark Office, intellectual property intensive industries accounted for 38% of gross domestic product (GDP), 52% of merchandise exports, and 27.9 million jobs in 2016. Students interested in studying intellectual property and technology law at the University of Idaho can take a range of upper-division courses designed to prepare them for legal careers in this dynamic and growing practice area.⁵²

THE UNIVERSITY OF KANSAS SCHOOL OF LAW:

The Media, Law and Technology Certificate program gives students an opportunity to advance their knowledge and skill in the diverse legal subjects that are of concern in media law practice. These subjects range from censorship, libel, freedom of information and prejudicial pre-trial publicity to licensing of intellectual property, digital privacy rights, media liability insurance, electronic data collection, storage and transfer, and security of wireless and online communications.⁵³

51. *Center for Biotechnology & Law*, U. HOUS. L. CTR., <http://www.law.uh.edu/biolaw/> (last visited Oct. 3, 2019).

52. *Intellectual Property & Technology Law Track*, U. IDAHO C. LAW, <https://www.uidaho.edu/law/academics/emphasis-area/business-law-entrepreneurship/intellectual-property> (last visited Oct. 3, 2019).

53. *Certificate in Media Law and Technology*, U. KAN. SCH. LAW, <http://medialaw.ku.edu/certificate.shtml> (last visited Oct. 3, 2019).

UNIVERSITY OF MAINE SCHOOL OF LAW:

The Center for Law + Innovation connects students to opportunities in intellectual property, information privacy law, and cybersecurity.⁵⁴

UNIVERSITY OF MARYLAND FRANCIS KING CAREY SCHOOL OF LAW:

Cybersecurity & Crisis Management Law Program - students can receive formal recognition for completion of the Health and Homeland Security's Concentration in Cybersecurity and Crisis Management. To be awarded this designation, students must earn a minimum of 17 credits through the program's three basic components—classroom, experiential learning, and research and writing. The Cybersecurity and Crisis Management Law Certificate is approved by the Maryland Higher Education Commission and students completing the requirements will be recognized by the homeland security community for possessing a level of expertise and specialization in the field.⁵⁵

UNIVERSITY OF MIAMI SCHOOL OF LAW:

BILT is organized along two primary tracks: an innovation and technology track, and a business and compliance track. The former is aimed at students who want to focus on legal issues related to startups, especially those in the legal industry. The latter is aimed at students who want to focus on legal issues related to mature technology firms.⁵⁶

UNIVERSITY OF MINNESOTA LAW SCHOOL:

Program [h]ighlights [include a] [w]ide variety of core and specialized courses and seminars on topics such as patent, copyright, trademark, unfair competition, privacy and First Amendment[;] [o]ne-to-one independent research and writing

54. *Center for Law + Innovation*, U. ME. SCH. LAW, <https://mainelaw.maine.edu/academics/clinics-and-centers/cli/> (last visited Sept. 26, 2019).

55. *Cybersecurity & Crisis Management*, U. MD. FRANCIS KING CAREY SCH. LAW, <https://www.law.umaryland.edu/Programs-and-Impact/Cybersecurity-and-Crisis-Management/> (last visited Sept. 26, 2019).

56. *The Business of Innovation, Law, and Technology Concentration: BILT*, U. MIAMI SCH. LAW, <https://www.law.miami.edu/academics/concentrations/business-innovation-law-and-technology-concentration> (last visited Sept. 26, 2019).

project opportunities with faculty[;] [i]nternships with businesses, advocacy groups, government, and international organizations[; and] [o]pportunities for networking and career advancement with alumni worldwide.

Study Opportunities [include:] [r]equired courses: three core IP courses (Copyright, Patents, Trademarks)[;] [s]ix additional credits related to IP and technology. Choices include multiple advanced patent classes, privacy law, food and drug law, IP transactions, antitrust and IP, IP and climate change, and multiple classes focused on particular technologies or industries[;] [o]ther options: specialized courses throughout the university in areas such as science, public policy, business, or computer science.

Practical Opportunities [include:] [p]articipation in the Intellectual Property Moot Court team; [w]riting for *Minnesota Journal of Law, Science, & Technology*, *Minnesota Law Review*; *Minnesota Journal of International Law*; and *Law & Inequality: A Journal of Theory and Practice*.⁵⁷

UNIVERSITY OF MISSOURI SCHOOL OF LAW:

The University of Missouri School of Law's Center for Intellectual Property & Entrepreneurship was formally announced on March 13, 2015. The center establishes the school as a thought leader in the area of law and innovation by preparing students for the changing legal marketplace and supporting campus interdisciplinary efforts in related fields. The center's focus resides not just on intellectual property, business and finance, but on the intersection of science, technology, engineering and math (STEM) issues.⁵⁸

The Center for Intellectual Property & Entrepreneurship promotes faculty symposia and scholarship in all areas involving law and innovation and develops curricular and extracurricular programming to prepare law students to participate in entrepreneurial and innovation communities. The center also

57. *Intellectual Property & Technology Law Concentration*, U. MINN. L. SCH., <https://www.law.umn.edu/academics/concentrations/intellectual-property-technology-law-concentration> (last visited Sept. 26, 2019).

58. *Center for Intellectual Property & Entrepreneurship*, U. MO. SCH. LAW, <https://law.missouri.edu/ip/> (last visited Jan. 21, 2020).

supports the law school's Office of Career Development in identifying externships, summer positions and full-time jobs within the center's focus area, and collaborates with campus and community members to generate resources that will increase and promote innovation and entrepreneurship throughout the reason.⁵⁹

UNIVERSITY OF NEW HAMPSHIRE FRANKLIN PIERCE SCHOOL OF LAW:

No law school in the world has had an impact on intellectual property law and infrastructure like UNH Law. Our Franklin Pierce Center for Intellectual Property prepares the next generation of lawyers for practice in a global economy based primarily on intellectual property. To that end, our intellectual property program includes leading scholars and practitioners in the core IP fields of patent law, copyright law, trademark law, privacy, internet law, and law and technology. From drones to 3D printing, from iPhones to groundbreaking vaccines, there are countless applications of IP—and our pioneering faculty is there to teach our students how to lead the path forward.⁶⁰

UNIVERSITY OF NOTRE DAME LAW SCHOOL:

Intellectual property is one of the fastest-growing legal specialties in the United States, and increasingly in the world. Notre Dame Law School's Program of Study in Intellectual Property and Technology Law prepares students to practice in a wide variety of intellectual property-related fields. Our faculty teach basic and advanced courses in the core doctrines of intellectual property — patent, copyright, trademark and unfair competition—and related fields including design, cyberlaw, and antitrust. For an information sheet on this program of study.

The Intellectual Property and Entrepreneurship Clinic operates as a small, boutique law firm focused on assisting clients with transactional IP issues. The purpose of the Clinic is to

59. *Id.*

60. *Franklin Pierce Center for Intellectual Property*, U.N.H. FRANKLIN PIERCE SCH. LAW, <https://law.unh.edu/centers-institutes/franklin-pierce-center-intellectual-property> (last visited Sept. 26, 2019).

provide students with valuable experience in applying substantive intellectual property law to real-world problems, and to produce high-caliber work product for Clinic clients. Exemplary matters include preparing patentability and trademark opinions, filing and prosecuting patent and trademark applications, drafting license agreements, as well as counseling clients on a range of intellectual property matters.⁶¹

UNIVERSITY OF PENNSYLVANIA LAW SCHOOL:

CTIC (Center for Technology, Innovation & Competition) is dedicated to promoting foundational research that will shape and reshape the way legislators, regulatory authorities, and scholars think about technology policy, intellectual property, privacy, and related fields.⁶²

UNIVERSITY OF PITTSBURGH SCHOOL OF LAW:

“Intellectual property law” encompasses patents, copyrights, and trademarks as its core subjects, along with specialized bodies of law for designs, plants, and geographical indications, among other things. “Innovation law” is meant to deal broadly with IP issues and with related business law, employment law, technology law, trade law, and free speech law questions—among many others—for individuals, firms, and governments in the arts, entertainment, privacy and security, software and computer networks, life sciences, and technology development and commercialization. These related fields are among the most exciting and challenging areas of contemporary law practice. Pitt Law today is building on its distinguished tradition of scholarship and teaching in these disciplines.⁶³

UNIVERSITY OF SAN FRANCISCO SCHOOL OF LAW:

The LLM in Intellectual Property and Technology Law Program is designed for a diverse group of lawyers—from seasoned practitioners looking to stay abreast in that constantly chang-

61. *Intellectual Property & Technology Law*, U. NOTRE DAME L. SCH., <https://law.nd.edu/academics/programs-of-study/intellectual-property-technology-law/> (last visited Sept. 26, 2019).

62. *Center for Technology, Innovation and Competition*, PENN L., <https://www.law.upenn.edu/institutes/ctic/> (last visited Sept. 26, 2019).

63. *Intellectual Property and Innovation Law Concentration*, U. PITT. SCH. LAW, <https://www.law.pitt.edu/academics/jd/specialized/intellectualproperty> (last visited Sept. 26, 2019).

ing field, to recent graduates wanting to get an edge in a market where specialization is increasingly important to employers. It provides a thorough exposure to American, international, and comparative intellectual property law, and equips students with a strong grounding in legal theory and practical skills to pursue gainful employment in the intellectual property field in the US and abroad. Our alumni practice all aspects of IP law for law firms, governmental agencies, and corporations in the U.S. and abroad.⁶⁴

UNIVERSITY OF SOUTHERN CALIFORNIA GOULD SCHOOL OF LAW:

Earning a certificate in Technology and Entrepreneurship Law in addition to your LLM degree gives you a thorough grounding and hands-on preparation for practice at the intersection of intellectual property and business law. It also offers you a credential that demonstrates your specialized training in this vibrant field.⁶⁵

UNIVERSITY OF WASHINGTON SCHOOL OF LAW:

The Technology Law and Public Policy Clinic (Tech-Law Clinic) works at the intersection of public policy and technology. Students have the opportunity to write laws, compose policy papers, meet with stakeholders and provide legislative testimony. In the last few years, Tech-Law Clinicians wrote legislation establishing Washington state's Office of Privacy and Data Security, composed materials leading to the passage of Washington House Bill 1788, which outlawed non-consensual pornography (also known as "revenge porn") and assisted in the successful passage of Washington House Bill 2970 establishing a working group which will assist the state in crafting policies governing the testing and use of autonomous vehicles. Locally, the Tech-Law Clinic assisted in updating and amending the City of Seattle's Surveillance Ordinance. Students in the Tech-Law Clinic have written and shared policy papers on topics such as algorithmic discrimination; distributed energy; TOR exit

64. *LLM Programs: LLM in Intellectual Property and Technology Law*, U.S.F. SCH. LAW, <https://www.usfca.edu/law/academics/llm> (last visited Sept. 26, 2019).

65. *Technology & Entrepreneurship Law Certificate*, USC GOULD SCH. LAW, <https://gould.usc.edu/academics/certificates/technology/llm/> (last visited Sept. 26, 2019).

nodes; three dimensional printers and police use of body cameras.⁶⁶

WIDENER UNIVERSITY DELAWARE LAW SCHOOL:

The Taishoff Advocacy, Technology and Public Service Institute offers programs focused on advocacy and technology. The Institute provides Delaware Law students opportunities to advance litigation skills while preparing to defend future clients.

The Taishoff Advocacy, Technology, and Public Service Institute teaches about the trial process from initial client interviews through summation. The institute offers a variety of specialized courses and seminars, a nationally recognized Intensive Trial Advocacy Program, and opportunities for students to participate in interscholastic advocacy competitions coached by skilled practitioners. The institute also offers continuing legal education in advocacy skills and theory.⁶⁷

66. *Technology Law and Public Policy Clinic*, U. WASH. SCH. LAW, <https://www.law.uw.edu/academics/experiential-learning/clinics/technology-law> (last visited Sept. 26, 2019).

67. *Taishoff Advocacy, Technology and Public Service Institute*, WIDENER U. DEL. L. SCH., <https://delawarelaw.widener.edu/prospective-students/jd-program/jd-academics/signature-programs/criminal-law-the-taishoff-advocacy-technology-and-public-service-institute/> (last visited Sept. 26, 2019).