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Artificial Intelligence and the Law: A Futuristic Legal System

“A computer is as fresh and alert at 2am as it was at nine o’clock the previous morning”

1 Artificial intelligence is the branch of computer science that emulates decision making ability of humans by mimicking human brain and their behavior. The term was coined in 1956 by John McCarthy at the Massachusetts Institute of Technology¹. AI is intelligence exhibited by machines. In computer science, an ideal "intelligent" machine is a flexible rational agent that perceives its environment and takes actions that maximize its chance of success at some goal². In literary words it can be said that artificial intelligence is applied when a machine mimics "cognitive" functions that humans associate with other human minds, such as "learning" and "problem solving"³. Artificial intelligence can be regarded as a process involving computer technology which makes the system automatic limiting the role of human in certain matters.

Artificial Intelligence has made its way within wide range of fields like medicine, transportation, music, finance, law and almost every industry. AI has lately been used in legal world very frequently, as can be seen in a report by Lord Justice Briggs “on improving the efficiency of civil justice” where he mentions that Civil legal court disputes in England and Wales could be resolved online by the use of artificial intelligence (AI) which would help in assisting judges - and even in passing judgments⁴. A lot of big law firms are increasingly using AI software to sift through the mountains of documents and email evidence that accumulate in big commercial cases.

The phrase “computers and law” originated sometime in the late 1960, but was not given a serious approach. The first journal to emerge for the new field of research, Law and Computer Technology was in January 1968 by the World Peace through Law Center, Washington DC. It reported on the Third World Conference on World Peace through Law in Geneva 1967, which featured an exhibition of computers and law, and a session on legal information retrieval. ⁵

¹ “Artificial Intelligence” available at http://www.webopedia.com/TERM/A/artificial_intelligence.html

² Merriam-Webster dictionary

³ Artificial Intelligence: A Modern Approach by Russell, Stuart J.; Norvig, Peter (2003)

⁴ Artificial intelligence could help judges in online court, 5 th july 2016 available at <http://www.ukauthority.com/news/6313/artificial-intelligence-could-help-judges-in-online-court>

⁵ Computers and Law: Some beginnings by Jon Bing, University of Oslo (Norway), available at <http://what.csc.villanova.edu/~cassel/2500/S2008/Law4.pdf>

The first serious proposal for applying AI techniques to law was by Buchanan and Headrick in 1970 through their article, reiterating the importance of computer for a lawyer, if a lawyer can retrieve right answers⁶.

AI has revolutionized perspective of lawyers in respect of their interaction with the clients. Artificial intelligence is more than a legal technology which works on 2 branches:

- computer technology used by lawyers for making their own work more efficient, like retrieval, decision support and in supporting the administration of justice;
- The substantive law applied to the trade and use of information technology and associated services.⁷

Basically, AI involves the study of automated human intelligence. This includes both practically-oriented research, such as building computer applications that perform tasks requiring human intelligence, and fundamental research, such as determining how to represent knowledge in a computer-comprehensible form⁸

Fields of Artificial Intelligence in legal Area:

- **Rule-based** – In this concept the expert systems rely on a model of deductive reasoning that utilizes i.e. "if A, then B" rules. This system basically works on a chaining concept, where it chains with the forward and backward data which is fed into the system. In a rule-based legal expert system, information is represented in the form of deductive rules within the knowledge base. In the rule-based approach, a rule is encoded in a simple style of "if- then format": If certain conditions are known to hold, then it will take the stated action or draw the stated conclusion⁹.
- **Case-based** reasoning models work on the method of solving new problems based on the solutions of similar past problem i.e. the precedents of the decided cases. It store and manipulate examples or cases, emulate an analogical reasoning process on it to give the

⁶" Some Speculation about Artificial Intelligence and Legal Reasoning" by Bruce G. Buchanan and Thomas E. Headrick *Stanford Law Review* Vol. 23, No. 1 (Nov., 1970), pp. 40-62, Available at https://www.jstor.org/stable/1227753?seq=1#page_scan_tab_contents

⁷ Supra

⁸ "Developing an Online Dispute Resolution Environment: Dialogue Tools and Negotiation Support Systems in a Three-Step Model" by Arno R. Lodder & John Zeleznikow Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1008802

⁹ Legal Expert system available at <http://www.revolvy.com/main/index.php?s=Legal%20expert%20system>

result. This model effectively draws on known experiences in the outcomes for similar problems¹⁰.

- **Neural net:** They are intended to function in way as analogous to neurons of a human brain. In this type the input points are connected to output points through a simulated network. The basic advantage of this type is its ability to be correspondingly trained for the desired output and once the desired output is received then it becomes ready for the future inputs¹¹.
- **Fuzzy logic** models attempt to create 'fuzzy' concepts or objects that can then be converted into quantitative terms or rules that are indexed and retrieved by the system. In the legal domain, fuzzy logic can be used for rule-based and case-based reasoning models.



These observations all suggest that the law is an exceedingly challenging domain for AI. Research in AI and law will impel AI in new directions and thus benefitting each both analytically and practically. As an analytical medium, AI forces meticulous attention to details and precise testing of theoretical ideas. This will help in unearthing the flaws and leads in the way of modification of it into to a refined version. ¹²

Many current efforts in computational law are focused on the empirical analysis of legal decisions, and their relation to legislation. These efforts usually make use of citation analysis, which examines patterns in citations between works. Due to the widespread practice of legal citation, it is possible to construct citation indices and large graphs of legal precedent, called citation networks. Citation networks allow the use of graph traversal algorithms in order to relate cases to one another, as well as the use of various distance metrics to find mathematical relationships between them.^{13 14}

¹⁰ "A Tutorial on Case-Based Reasoning" by Julie Main, Tharam Dillon and Simon Shiu, available at <http://www4.comp.polyu.edu.hk/~csckshiu/pdf/shiu01scbrb2.pdf>

¹¹ "Artificial Legal Intelligence" by Pamela N. Gray, Harvard journal of Law and Technology , Volume 12 Available at <http://jolt.law.harvard.edu/articles/pdf/v12/12HarvJLTech241.pdf>

¹² Stepping Stones to a Model of Legal Reasoning by Edwina L. Rissland, The Yale Law Journal, Vol. 99, No. 8, Available at <http://www.jstor.org/stable/796679>

¹³ Network Analysis and the Law: Measuring the Legal Importance of Precedents at the U.S. Supreme Court by Fowler, J. H., T. R. Johnson, J. F. Spriggs, S. Jeon, and P. J. Wahlbeck

¹⁴ "A Mathematical Approach to the Study of the United States Code", by Bommarito, Michael J., and Daniel M. Katz.

Challenges involved in using AI within the Legal system.

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It is premature to state categorically that computers will be used as aids in the process of legal reasoning; the only way of finding out whether the relationship will be fruitful is to explore it seriously. It is definite that it would be of a great help to the legal system as whole; be it the lawyers, judges, court system or even clients. Initially it was believed that it would be possible to put all relevant rules in to the specific domain in a computer to resolve all possible cases, but it happens to be a distant dream for now. The researchers in civil law domain still find it as a probability, as it is mostly depended on the rules and statues. Practically, it is not developed with the aim to take over the role of the judge. One reason which is reiterated is that it will be morally undesirable to allow computers to make judgments.

The mere hindrances in this path is that a law requires interpretation, as seen in India the legislature drafts the laws. Such cannot be put as a straight jacket formula, as Law is an Open system in which decision is based on arguments and circumstance which cannot be fed into a software. Further the adversarial nature of the legal system with the role of psychology and negotiation make it dynamic and ever changing environment to deal. Any discussion of AI must note that tasks involving reasoning or perception, such as language understanding to even custom as well as traditions, are by far the most difficult for AI and yet to be overcome. The doing of a technical task is easier as it only involves a defined platform coded by binary modes. However this cannot be applied where it involves reasoning based on certain unknown circumstance or arguments.¹⁵

What does the future holds?

AI has now become a practical reality, with the legal industry paving the way in innovation. By 2024 the market for Enterprise artificial Intelligence systems will increase from \$202.5m million in 2015 to \$11.1 billion (according to a report from Tractica)¹⁶.

Lawyers, designers, and computers scientists have considered ways to use technology to improve non-lawyers' access to justice. IIT's Institute of Design and the Chicago-Kent College of Law. collaborated on a multi-year redesign of self-represented litigants' court experience. Their 2002 report documented their investigation of current assistance systems, creation of a new design protocol, and plan for a new system design. The report also puts forward a number of

¹⁵ Supra Note 12

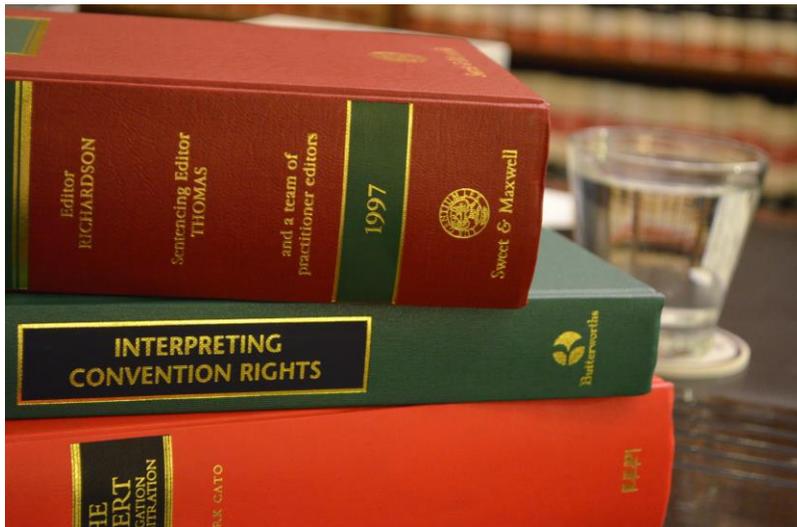
¹⁶ Available at <http://techcitynews.com/2016/06/11/artificial-intelligence-revolution-legal-services/>

concept designs, reimagining how the court system may work and people may access it. Some of their proposals include developing of certain networks and software to:¹⁷

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- Link together judicial staff and the public in the court premises
- Translate exchanges in courts in different languages, for both text and verbal communication.
- Develop certain platforms to diagnose legal problem and provide appropriate services.
- Give litigants an idea about their chances of winning the case and also analyzing the worth of it.
- Help litigants to extract data from their problem situation and assemble it in the documents.
- Help the litigants to know about the cases seeing precedent and help them in filing it properly.
- Develop an interactive search engine providing with litigant’s case history that provides a clear timeline and reference to past actions.

Mixing AI with law is an incredible step forward as law forms the basic ingredient in regulation and governance of a society being the part and parcel of every individual actions. Companies looking to use AI extensively will more likely to have a completely different structure than typical, established firms.



¹⁷ "Access to Justice: Meeting the Needs of Self-Represented Litigants" ,by Charles L. Owen, Edward B. Pedwell, and Ronald W. Staudt, Available at <http://www.kentlaw.iit.edu/Documents/Institutes%20and%20Centers/CAJT/access-to-justice-meeting-the-needs.pdf>

Conclusion

AI is becoming an important tool to extract and use data in a faster way and with a greater frequency. Nevertheless the importance of lawyers will still be intact within a legal system developed on the lines of Artificial intelligence. In comparison to a lawyer it would be difficult for a layman to discover and establish the questions of law which should be specifically addressed to an AI system. At this moment it would be too demanding to imagine that the level of trust which a client maintains with a lawyer would be similar with a machine with great legal intelligence. This really now depends on the lawyers of the future to make use of this technology to improve their place in market and not just get affected by it. The credibility and accuracy of the AI systems cannot always be sacrosanct but surely it will be invaluable for overall development of the legal system, as development in either of them would be an addition of value to another.

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For further information on this topic please contact Mr. Nitin Walia or Mr. Deepak Grover at KMNP Law by telephone (+91-11-45502527) or email (n.walia@kmnplaw.com).

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The content of this article is intended to provide a general guide to the subject matter. Specialist advice should be sought about your specific circumstances.