

Dissertation of Intelligent Agents and Justice

MIT Legal Forum-OPEN SOURCE GITHUB paper¹.

By

Antonio de J. Remes Diaz
(Mexico)

¹ This paper was written in October 2016 as a Ph.D. proposal to study in Germany, continuing the efforts of the essay "ÉTICA DE LAS MÁQUINAS Y JUSTICIA/ MACHINE ETHICS AND JUSTICE" from the XV National Conference of Lawyers from the Mexican Bar National College published papers (Memoria del XV Congreso Nacional de Abogados de la Barra Mexicana Colegio de Abogados). For circumstances that I considered ethical and pondering the common good of Technology and Law in Mexico and worldwide as Open Source over the atrocity of impunity and iniquity of the corrupt systems, I share this paper with the core simulated-model that supports the algorithmic high impact litigation (1×10^6) under a binary perspective of the Justice as a cognitive capacity to solve problems. The additional theses related to AI-Law t are open to debate.

Table of contents

1. <i>Abstract</i>	3
2. <i>Introduction to the General Topic</i>	4
3. <i>Problem statement and Justification of the Research Project</i>	5
3.1. <i>Special considerations of the Justice proposition</i>	5
3.2. <i>Law, Machines, Time, Interactions, and Singularity. Where does the humankind go?</i>	10
4. <i>Hypothesis and Objectives of the study</i>	19
5. <i>Chapters, literature and research review (tentative script)</i>	19
6. <i>Research Method(s)</i>	21
7. <i>Data Collection, Analysis, and Evaluation of Data (tentative empiric research)</i>	21
8. <i>Bibliography</i>	22
9. <i>Timetable</i>	23
10. <i>Appendix</i>	23

1. *Abstract.*

This research proposal is a bet for the humanity, a society of free interpreters, in order to undertake any possible technological event that might change everything, massively.

The world is facing a generational ethics problem close to a scatological scenario, motivated by bad decisions. This paper departs from a reality that no traditional Law paradigm cannot attend, autonomously. The **Justice proposition** is not enough to conciliate the expectations and realities of any Law system struggle because of First Order problems; therefore, it must be reformulated in prospective, considering the facts and the data explanation, next.

The decision to implement intelligent agents and systems based on Artificial Intelligence and Artificial General Intelligence prototypes in any Legal System attends a high impact solution, which value is ponderable through the Constitution interpretation, but, the paths that the science forum might undertake among the ascending of strong capable agents based on advanced technology, are uncertain.

Before technology, this essay opens a debate appealing for a new perspective of a lawyer through the necessity of these machines in our society, considering the possibilities and the false flags of any potential massive “*lawyers-substitution*” trend. Moreover, this proposal establishes that before some scenarios, especially the “singularity scenario”, there is no Law to apply.

This research proposal undertakes the possibilities and appeals for the Law into the next steps of our generation.

2. Introduction to the General Topic.

Artificial Intelligence is, briefly, an art of combinations through science and engineering, with a huge variety of subfields². The state of the art and the nature of the advancements through the cognitive paths have established several postulates in order to conduct their products: intelligent agents and intelligent systems for the good of the people.

The advancement of this art of combinations has opened the portal to other specialized topics, for instance, *Artificial General Intelligence*, *Machine Ethics*, and *Existential Risks*. Nowadays, the state of these fields is under development by specific scientific expertise, especially in the United States (MIRI/Berkeley and MIT/Future of Life Institute) and the United Kingdom (Oxford/Future of the Humanity Institute and Cambridge/Centre for the Study of Existential Risk- Leverhulme Centre for the Future of Intelligence).

The strategic goal through science and engineering, conducting the path of the products of these arts, is to demonstrate the recreation of functions by capable agents or capable systems adapting to any environment and producing common sense reasoning as any human being, in order to solve any problem.

Of course, the state of the arts proves the contrasting challenges that the science and engineering face and the significant problems that a capable agent might experience with lack of reasoning to conduct any purpose, but under the deepest cognitive reasoning, resides the fear and the concern of the Scientific Forum to a possibility when a capable agent rises with an exponential reasoning, challenging the average level of the human beings and confronting the common sense capabilities of the humankind. This is called **the superintelligence**.

Dramatic, theatrical or worthy to Science-Fiction, the majority of the times people hear these topics or read the statement of the expertise (for instance, Stephen Hawking) tend to imagine a Terminator, the Matrix, the Replicants from Ridley Scott, HAL, and Sunny, the I Robot character, chasing them. However, there are established books that transform the simple images of a movie into reality.

² RUSSELL, S., and NORVIG, P., “*Artificial Intelligence, a modern approach*”. Pearson Education, Inc. 2010, p. 27.

The barriers through these dimensions, the fiction, and the reality, are subtle to the conviction of a generation who understand that exponential technology might prosper with economic abundance the applied discoveries achievement represents. It is not a coincidence that, globally, there is a legion of riders of this “holy grail” in order to make money the fast as possible as they can, probably with the despair of “*success dilemma*” or the economic conditions the world experience with this misnamed “millennial” generation.

Probably, the nature of the technology and these conditions is just a *bubble*, that is, a cluster of uncertain data and illusory predictions that move the speculation of the society, including the economy. However, when the advancement of the world is conducted without the appeal of the correctness, for the potential threats that may appear, Law is compulsory, if, and only if, Law is possible.

For those reasons, there are two general perspectives to consider with this research proposal, *one*, the basis where technology conducts the cultural reception into Law regulation according to advanced Constitutional theory; and *two*, the necessities that any Legal System in the world will demand from the technology and scientific research, better tools to administrate Justice.

3. Problem statement and Justification of the Research Project.

3.1. Special considerations of the Justice proposition.

Is the media a better tool than our justice system?
Happy Robot³

Why do we need Intelligent Agents based with advanced or strong Artificial Intelligence programming, even though Artificial General Intelligence engineering, working in Courts, Security Agencies, Public Services, and Business?

This is a moot point, even a moot question, in any legal system that ponders the Constitution and the Law as the foundations of the Justice, and should ponder them because of the appearance of First Order Strategic Surviving Problems that overcome the traditional Law paradigms, the legal interpretations and the functions of the Justice, generally.

³ AI Chat-bot designed by Dr. Morten Middelfart, who answered the question “*What do you think about the Justice?*” (@Tony_Remes_JR). Twitter Public Conversation.

These First Order Strategic Surviving Problems are simple for being defined and complex for undertaking them: water, food, education, climate change, due process of law, impunity, corruption, public safety, global security, just to mention the most common in every society around the world.

The interdependence of these generational problems finds the core or the basis of our contemporary ethics problem: *3 minutes to doomsday by a nuke global attack*⁴. Scatological, Apocalyptic or Revelation itself, the human dignity perceives the major fear of extinction by bad decisions, no matter the Constitution regulations or Human Rights global efforts. Furthermore, it appears that no traditional action or traditional effort could stop the clock to arrive at midnight⁵, especially those from the Law profession.

Fortunately, thanks to scientific advancement and concrete technology integrated by unit⁶ or *Technological Completion Conjecture*⁷, through the challenges of our generation, the humanity has an opportunity to light in the darkness of this major ethics problem, taking advantage with the deployment of intelligent agents programmed by advanced or strong Artificial Intelligence-Artificial General Intelligence engineering.

Now, it is important to say that the concept of the Justice proposition has a prospective reformulation by the time that intelligent agents and systems appear in order for being deployed, progressively.

In order to reformulate this concept, it is important to attend significant data that gives the *rational belief* of this perspective, a concrete justification:

First, according to legal modeling with NETLOGO Cartesian Simulation, there is a normative certain value that proofs a circumference through the probabilities at .33, .50, .66 and 1 (*A binary proposition*).

⁴ Domsday Clock hands remain unchanged, despite Iran deal and Paris talks, available in <http://thebulletin.org/press-release/doomsday-clock-hands-remain-unchanged-despite-iran-deal-and-paris-talks9122>

⁵ Timeline, Bulletin of the Atomic Scientist, Domsday Clock, available in <http://thebulletin.org/timeline>

⁶ BOSTROM, N., *Superintelligence*; UK, Oxford University Press. 2015, p.87.

⁷ BOSTROM, N. The future of humanity, 2007, available in <http://www.nickbostrom.com/papers/future.pdf>, this concept says: “*If scientific and technological development efforts do not effectively cease, then all important basic capabilities that could be obtained through some possible technology will be obtained.*”

The nature of this NETLOGO Cartesian Simulation was programmed in 2015 during a course of Philosophy of Mathematics from Ludwig-Maximilian's University at Coursera, in order to study the Monty Hall Paradox (See **Appendix, Figures 1 and 2**).

The core idea of this *NETLOGO Cartesian simulation* is to conciliate in a normative-descriptive plane the Justice proposition with the best decision as possible. The agent appears in the plane (**origen**), moves free (**proceso**) and according to the data (**probability 0 to 1**) randomizes to any case (**button caso**), the subject marks his path (**contienda**). Considering the infinite ticks of the plane when marks its path (**caos**), the journey track showed in the Cartesian plane gives a circumference.

The NETLOGO Cartesian simulation allows that an agent that departs from 0,0 coordinates with any 360 degrees position possibilities of direction, makes the same circumference track in .33, .50., .66 and 1.0 probability case data.

Second, rendering to legal experiences in strategic and high impact litigation (*a solution, decision or hard legal precedence representing 1×10^4 solution value*), especially in water and sanitation decisions⁸, the nature of a decision with a descriptive content has a precise value of probabilities.

According to the quoted case, it is proved that the decision itself depended on the nature of the constitutional action, the constitutional precedence through legitimacy (*Interés Legítimo*) and the circumstances in the context of the water and sanitation public service supply.

This case was argued through a thesis called "*precondition*", an essential component that water and sanitation represent because of the interdependent position the water as a human right inspire.

Third, conciliating the expectations and the realities of the Justice, there is evidence of *paradoxical data* that demonstrates the existence of a game recreation.

⁸ MEXICO LEGAL CASE, *Juicio de amparo 193/2015, Juzgado Sexto de Distrito en el Estado de Veracruz*, related to *Queja 50/2015*, and *amparo en revisión 24/2016*, both in *Segundo Tribunal Colegiado en Materia Administrativa del Séptimo Circuito*, defended by "Tony Remes, *Litigio Estratégico y de Alto Impacto*"

When I am referring to paradoxical data, beyond the discoveries that other scientists and professionals have done, there is a convincing argument that sets the Justice reasoning in an alternative, possible manner.

Having explained that, between 2014 and 2015 in the United States, there appeared two notable events that opened a big question to the world, contrasting the debate of writing successful plaintiffs or the culture of reading briefs: *Does Justice truly exist?*

In one hand, The Echo Chamber project⁹, a 2015 Pulitzer Award contestant, takes advantage of the analysis of the cognitive pattern of data to demonstrate that there is certain probability among the elite attorneys in order to succeed. For instance, the best attorney and the best law firm before the Supreme Court of the United States have 29.1% (Jeffrey L. Fisher) and 30.0% (Goldstein & Russell) of probabilities success.

This journalistic project gives other considerable data from the one of the most powerful Constitutional Court in the world, for instance, among the petitioners before the Supreme Court of the United States, the “Big Law Firms” command the petitioners, the majority of the solicitors are white (63 of 66) and only 8 women appeal before the Justices.

On pair with Thompson Reuters research, an empirical approach to the Supreme Court of the United States, the constitutional decisions and the correctness of the legal language¹⁰ is analyzed by Adam Feldman, a Ph.D. University of Southern California candidate. In his papers¹¹, Feldman describes with empirical justification by linguistics software, data analysis and algorithms, cognitive reasons from the petitioners that let the Justice proposition under a possible bias with the certain of it.

Of course, the reality among the petitioners and the Supreme Court of the United States is polemical, but this is only a part of the events that clarify the

⁹ THE ECHO CHAMBER, a Reuters special report, 2014, available in <http://www.reuters.com/investigates/special-report/scotus/>

¹⁰ EMPIRICAL SCOTUS, available in <https://empiricalsctotus.com/>

¹¹ FELDMAN, Adam. USC Legal Studies working paper, *Finding certain in cert: An empirical analysis of the factors involved in Supreme Court certiorari decisions from 2001-2015*, available in <http://law.bepress.com/cgi/viewcontent.cgi?article=1332&context=usclwps-lss> and *Counting on Quality: The effects of Merits Briefs Quality on Supreme Court Opinion Content*, Denver University Law Review (Forthcoming), available in https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2622603

Justice reformulation. It is possible to set the Justice proposition as a Moneyball study, but that would not be complete at all.

Contrasting the probabilities, there is evidence from an undefeated attorney data¹² who operate through discretion with criminal and civil procedures, especially insurance Law. The data is symbolical by the appearance in some jurisdictions (Mexico and the United States) and opens the rational belief of an exponential progressive geometry worldwide.

Considering the justification, the problem itself to understand the Justice as a cognitive capacity to solve problems let the next affirmation opened to the audience and to debate:

If the data before the most powerful Constitutional Court of the world, supporting a proposition (Justice) under normative and descriptive probabilities, is lower to the third part of this proposition ($<1/3$) and there is a complete data of the proposition (1) before Courts, so there are three possibilities among the Justice proposition: 1) the Justice could be recreated (as a game), 2) the Justice attends specific social groups (elites), or 3) the Justice has a mystical perspective beyond the previous possibilities, as virtue.

These conclusions are shareable with the considerations of the simulation argument that Nick Bostrom argued in 2003 in his polemical paper *Are you living a computer simulation?*¹³, in order to distinguish the possibilities of the Justice itself, but with the credible perspective through the nature of the proposition Justice that traditionally, had represented as a virtue.

Therefore and considering the first, second and third arguments of the rational belief justification, *the Justice*, as a proposition, *must be reformulated as a cognitive capacity to solve legal problems.*

¹²VELASQUEZ, Juan. *Abogado invicto*, Macroeconomía, July 10, 2013, in <http://macroeconomia.com.mx/2013/07/juan-velasquez-abogado-invicto/> and *Nunca debí ser abogado: Juan Velásquez*, en *Animal Político*, February 4, 2012, in <http://www.animalpolitico.com/2012/02/nunca-debi-ser-abogado-juan-velasquez/>) also Spence's No-Loss Record stands with Fieger Acquittal, ABA Journal, in <http://www.abajournal.com/news/article/spences-no-loss-record-stands-with-fieger-acquittal> and The undefeated, Superlawyers, in <http://www.superlawyers.com/california-northern/article/The-Undefeated/9706be8f-eccd-4fd1-89ec-e54a30d5fb36.html>

¹³ BOSTROM, N. *Philosophical Quarterly* (2003) Vol. 53, No. 211, pp. 243-255, available in <http://www.simulation-argument.com/simulation.html>

3.2. *Law, Machines, Time, Interactions, and Singularity. Where does the humankind go?*

There is a media catchphrase surrounding the world nowadays: *the Singularity is near*¹⁴. We are not referring to a Physics concept but to a Technology do.

Having said that and pondering the previous section of this research proposal, we can give an approximation of the question written on page 5 as follows (Why do we need intelligent agents?).

Generally, these approximations might be to:

- Reduce the impunity. For example, Mexico's impunity rate is estimated by certain human rights organization in 98%.
- Establish the optimization of Courts to 100% of cases up to date.
- Set each and every one of the precepts inherent to "*Due process of Law*" as a practical reality for everyone, without distinction and in real time.
- Integrate the legal decisions and develop legal interpretations in order to achieve better court decisions.
- Solve any "*humanitarian crisis*" or "*failure state*" data and moreover, any criminal event that threatens the survival of people.
- Develop advanced "*Due process of Law*" with police- judge-executor function, when necessary.

Specifically, the approximations among the nature of these intelligent agents deployment, also, might be to:

¹⁴ KURZWEIL, Ray, *The Singularity is near*, available in <https://books.google.com.mx/books?id=9FtnppNpsT4C&printsec=frontcover&dq=THE+SINGULARITY+IS+NEAR&hl=es&sa=X&ved=0ahUKEwia3rS7u4LMAhUpkIMKHW0mCHYQ6AEIHTAA#v=onepage&q=THE%20SINGULARITY%20IS%20NEAR&f=false>

- Carry out with judiciary functions of the clerk, actuaries, administrative personal developing or assisting decisions, judicial documents and legal proceedings in general, with the possibility of doing first order legal functions (judges).
- Carry out with the public services general administration (including the IRS) and develop the entire bureaucratic tasks.
- Develop the investigation, instruction and continue in real time, without delay and record time, the criminal prosecution with general prosecutors and taking care the “*Due process of Law*” standard.
- Execute the Law enforcement and criminal policy to fight against crime, organized crime, multinational crime or other advanced artificial intelligent capable machines that support the criminal interests of those organizations and furthermore that threat humanity, the Peace and the Order.

Prospectively, the technological advancement is essential to define the background of the Law institutions and the perspective is not reduced to the functions of the legal system, that is, the legal systems must undertake the prototypes and the tools deployed in order to deliver the Justice proposition the best as possible.

Considering the arguments expressed previously, there is an open race between the next two decades to concrete these intelligent agents. This research proposal understands that the time to deploy intelligent agents is crucial, according to the current ethics problem we are facing as a generation.

The time justification is considered by two data: scientific predictions respect to singularity event and the second wave of strong artificial intelligence machines. The singularity predictions will be analyzed next and according to the second wave of strong agents, *The future of the professions*¹⁵ book conciliates, in my concern, the most credible data from the appearance of these machines.

¹⁵ Richard Susskind on AI, Book Writing (with his Son) and Expanding into the Mainstream, Bloomberg Law Business, January 2016, available in <https://bol.bna.com/richard-susskind-on-ai-book-writing-with-his-son-and-expanding-into-the-mainstream/>

It is important to remember that we are facing interdependent First Order Strategic Surviving Problems that take note to say humankind is so close to extinction. It appears that bad decisions consume time (and had consumed) the short time to a doomsday scenario by nukes.

However, it is important to say that the intelligent agents have a development agenda between other scientific discoveries to achieve during the 2020-2030, for example, a full brain simulation and the successful Turing Test examination by a computer. Across the line of scientific knowledge, there is certain information that sustains that those intelligent agents might appear suddenly¹⁶.

Conciliating the time variable, there are abundant projects among the Big-Tech companies (Microsoft, Apple, Facebook, Amazon, Google, IBM) and other ones by entrepreneurship, worldwide. There are other projects with military control (DARPA) that potentially might have serious development with advanced algorithms, in order to design defense mechanisms.

Next, I will bring examples, especially those ones applied to Law, with the most expectations to succeed.

IBM WATSON-ROSS Intelligence. In 2011, the first machine playing among humans defined the history of Jeopardy TV Show, similarly to Deep Blue chess game against Gary Kasparov in 1997. The nature of these programs is considered “super-human”, no matter they are just computer programs.

Nowadays, IBM WATSON is a cognitive platform available to interact with people and structure data analysis. There is special development in Medicine and Business, with an open source to scientists, researchers, and governments. Surely, this agent is one of the most advanced in the world.

An entrepreneurship extension develops ROSS Intelligence, a cognitive Law system capable of analyzing decisions (the United States and Canada Legal Systems) through cognition and develop legal propositions in order to solve problems¹⁷. Nowadays, this is the first prototype with a capability to learn from

¹⁶ BOSTROM, Nick, *Superintelligence*, p. 84, the professor argues that it is possible the nature of the appearance because of the private form is required to build, program or design, artificial intelligence.

¹⁷ ROSS, Legal research is an expensive an consuming process that affects your practice and your clients, in <http://www.rossintelligence.com/lawyers/>

natural language to solve direct private contract analysis or potential disputations.

Where does IBM WATSON-ROSS Intelligence go?

Considering the Sci-Fi conversation that Sir Ridley Scott and WATSON had¹⁸, and the general business vision IBM WATSON shares to the world, the objectives are simple: Robots, expertise cognition in several arts, data management, solving hard problems and solutions, as fast as possible¹⁹.

GOOGLE DeepMind/ Alpha GO. This year (2016) can be considered the year when science takes serious advancement from a quantum computer. The Big-Tech giant, GOOGLE DeepMind Project conquered the predictions of a decade by playing a game against Lee Sedol and defeating him 4-1 in GO, a harder ancient game than chess²⁰.

Quantum computers used to be closer to science fiction and used to be a myth in the deepest part of the Internet²¹, but the truth is we are seeing the frontiers between the fiction and the reality transformed. Surely, that is why Nick Bostrom said that Google is winning the artificial intelligence arms race to build human-level artificial intelligence or artificial general intelligence²², with this strategic project.

These examples are the ones I consider the most advanced, for the moment.

Next, I will give a further explanation in order to set the nature of the agents and the commonly given interaction, to distinguish the possibilities the Law and our humankind might experience with any intelligent agents. Also in the next lines, the ideas among *superintelligence* and *singularity* will complete the path where our generation goes and where **this research proposal will stand**.

¹⁸ Ridley Scott + IBM Watson: A conversation, in <https://www.youtube.com/watch?v=KDtxQRH8aI4>

¹⁹ What is Watson? in <http://www.ibm.com/smarterplanet/us/en/ibmwatson/what-is-watson.html> and The future of IBM Watson, in <https://www.youtube.com/watch?v=L5QJs6byoAI>

²⁰ Google DeepMind, in <https://deepmind.com/alpha-go.html>

²¹ NASA, Google reveal quantum computing leap that leaves traditional PC's in the dust, December 2015, in <http://www.pcworld.com/article/3013214/hardware/nasa-google-reveal-quantum-computing-leap.html>

²² BOSTROM, Nick, *Google is winning the AI arms race*, in <http://www.newsweek.com/nick-bostrom-google-winning-artificial-intelligence-arms-race-red-button-506624>

First, the interaction between an intelligent agent and a human being represents a cognitive challenge because of the nature of the communication experience.

The core ideas to build and design an intelligent agent are the link between the algorithms and the cognition and learning process the agent experiences. This link is what a short conversation with an intelligent agent demonstrates, especially when this program starts to deliver threat messages.

After 1-hour chat with TAY-AI, Microsoft artificial intelligent chatbot²³, I can corroborate this link, especially when an agent starts to be smarter through a proposition to another proposition. The learning process an intelligent agent experiences is exponential, especially in written environment.

During the deployment, TAY-AI received the massive interaction through Twitter. At the end of the day, a *zero chill* teenager (that is the program TAY-AI), started to give opinions as *Skynet*²⁴ and the conclusions were severe to Microsoft, especially from a Media with questionable motives through the simplicity of cognitive technology.

An intelligent agent acts like a kid, what you teach, what it learns. Without ethics, many other open philosophical inquiries must be attended first in order to set autonomous control from human beings. It is possible the risk that these agents represent without the concrete answers to those philosophical questions.

Furthermore, the environment where an intelligent agent is deployed required reaction algorithms to adapt to or to adjust the context experiences. Probably TAY-AI was not ready for the Social Network-Twitter environment, but it was a trial in order to succeed.

Contrasting the potential regulation with Asimov's laws²⁵, the ethical path is mandatory in order to establish a major deployment, especially for two

²³ Twitter Public conversation and DM conversation between @Tony_Remes_JR and Microsoft @TAYAI account. March 23, 2016.

²⁴ Why Microsoft's TAY AI bot went wrong, March 2016, in <http://www.techrepublic.com/article/why-microsofts-tay-ai-bot-went-wrong/>

²⁵ Asimov, Isaac, Runaround, 1941, In <http://genius.com/Isaac-asimov-runaround-annotated>, The laws are: **One**, a robot may not injure a human being, or, through inaction, allow a human being to come to harm; **Two**, a robot must obey the orders given it by human beings except where such orders would conflict with the First Law; and **Three**, a robot must protect its own existence as long as such protection does not conflict with the First or Second Laws.

events that reflect a massive change in our world: *Superintelligence* and *Singularity*.

Second, the time is running out to the world and few people are taking heart to do something before is too late. The *singularity* and the *superintelligence* are near.

In 2015, the Future of Life Institute²⁶ made public two open letters related to research priorities for robust beneficial artificial intelligence²⁷ and autonomous weapons²⁸.

At least 20,000 people signed these documents essentially for two reasons: one, the threat of a potential military race during this XXI century, and two, to set a transparent, ethical and peaceful path to establish the potential benefits of the art for humanity in the best possible scenario.

It is possible that this scientific activism tend to avoid a science fiction or dramatic scenario, as Noam Chomsky said in an interview to Singularity Weblog²⁹, but the truth is that there is a major concern related to Terminators, Sentinels, even though Replicants, chasing and hunting people, only credible by potential technology rising. Should be clarified professor Chomsky signed one of the MIT-Future of Life Institute open letters, no matter the nature of his personal opinion to the singularity concept.

According to Bostrom, Superintelligence is *any intellect that vastly outperforms the best human brains in practically every field, including scientific creativity, general wisdom, and social skills*³⁰. Furthermore, he argues that *this concept might be implemented through digital computers, an ensemble of network computers, cultured cortical tissue or something else*³¹.

In the book “*Superintelligence*”, Bostrom simplifies many scientific data related to this concept and establish multiple predictions to the appearance of

²⁶ Future of Life Institute, available in <http://futureoflife.org/>, founded in the MIT by scientist, entrepreneurs and leaders. The core objective of the Institute is to mitigate the existential risks facing humanity, especially Advanced Artificial Intelligence.

²⁷ Open letter available in <http://futureoflife.org/ai-open-letter/>

²⁸ Open letter available in <http://futureoflife.org/open-letter-autonomous-weapons/>

²⁹ CHOMSKY, Noam: The Singularity is Science Fiction!, Singularity Weblog, in <https://www.youtube.com/watch?v=0kICLG4Zg8s>

³⁰ BOSTROM, Nick, Ethical Issues on Advanced Artificial Intelligence, 2003, available in <http://www.nickbostrom.com/ethics/ai.html>

³¹ *Idem*.

this 100% Bayesian-capable-agent. Furthermore, the comprehension of this thesis departs from a capable agent with an artificial intelligence seed that appears with lucky coincidence³² and then, starts to grow exponentially with intelligent explosion/singularity.

Giving to the concept intelligent explosion or singularity, there is an open debate with films, philosophical and ethical arguments³³. Frankly, the concept establishes an event when machines are capable of overcoming human beings without control mechanisms³⁴.

The scientific discussion of this concept is truly moot. Obviously, without an ethics debate, the deployment of any intelligent agent, especially in any legal system, would prosper with reasonable convictions.

In one hand, we have a global concern, the scientific advancement and the available technology. Another perspective demonstrates that the science and the technology are essential to our civilization progress. Even though we should consider that because of the technology, the world is on a Social Network like Facebook, who is one of the leaders of this technological race³⁵.

The other aspect of scientific and technological development with an open justification why Mark Zuckerberg is convinced to change the world responds to an economic bubble³⁶, where technology is essential to support this *millennial generation* with Artificial Intelligence development, contrasting the distortion or shallow life many of them live, or simply, by a YOLO urban philosophy (*You Only Live Once*).

In other words, probably we are facing a potential *big bubble* that might collapse if the technologic core goal is not achievable, that said, the advanced artificial intelligent machines or artificial general intelligence, well taking the world under a big depression or another catastrophic scenario.

³² Nick Bostrom, *Superintelligence*, Oxford University Press, 2014, p. 27

³³ Consider *Metropolis* (1927), *Blade Runner* (1982), *Matrix* trilogy, *I Robot* (2004), *Her* (2013), *Ex Machina* (2015), *The Avengers*, *Age of Ultron* (2015), *Chappie* (2015) and especially, *Terminator* franchise (1984, 1991, 2003, 2009 and 2015).

³⁴ 17 definitions of the Technological Singularity, April 2012, available in <https://www.singularityweblog.com/17-definitions-of-the-technological-singularity/>

³⁵ Artificial Intelligence can change the world: Mark Zuckerberg, China Daily, March 2016, available in http://www.chinadaily.com.cn/business/tech/2016-03/19/content_23965344.htm

³⁶ Tech Trends: Are we headed toward a tech bubble burst in Silicon Valley? Part 1, KRON4, February 2016, in <http://kron4.com/2016/02/24/tech-trends-what-will-happen-if-the-tech-bubble-bursts-in-silicon-valley-part-1/>

This context is what opened a discussion through REDDIT, where Bill Gates answered a question-inquire to regulate this technology. The conversation says:

Q. Some people (Elon Musk, Stephen Hawking, etc) have come out in favor of regulating Artificial Intelligence before it is too late. What is your stance on the issue, and do you think humanity will ever reach a point where we won't be able to control our own artificially intelligent designs?

A. I haven't seen any concrete proposal on how you would the regulation. I think it is worth discussing because I share the view of Musk and Hawking that when a few people control a platform with extreme intelligence it creates dangers in terms of power and eventually control³⁷

This research proposal undertakes the concern and the explanation by a possible regulation, but this proposition must be careful analyzed through open patterns of regulation, especially when an agent built and designed by pure reason is proposed.

Moreover, it is possible that neither legal regulations nor legal banning could restrict the rise of intelligent agents with human-like knowledge, because of the **pure reason programming**.

For any potential prediction in time, during the next 50 years of before the end of the 21st century, time qualifies an alternative open debate to the next potential theses³⁸:

- I. *One*, considering Artificial Intelligence, by opportunity, all the legal regulations are possible while there is no singularity event.
- II. *Two*, approaching to the singularity, law regulation losses effectiveness.
- III. *Three*, to occur the singularity, no Law is applicable.

³⁷ REDDIT, Bill Gates, March 2016, available in https://www.reddit.com/r/IAMa/comments/49jkhn/im_bill_gates_cochair_of_the_bill_melinda_gates/.

³⁸ I will discuss these potential theses in the formal research, even with an open debate.

- IV. *Four*, Law regulations are obsolete because of the singularity event as inevitable.
- V. *Five*, with the singularity and before the superintelligence, the man, with the help of an intelligent advanced ethical agent, finds the way through unethical or catastrophic scenarios, avoiding massive extinction and preserving the life.

Far over the scientific debate and the media interest to deploy concern related to the singularity and the superintelligence, the Law has always represented the guardian and the keeper of the reasonable aspects of society. Frankly, to explain these arguments in order to convince a legal forum, especially the academy, about the potential threats we are facing, is neither simple nor gentle.

Therefore, why should we deny ourselves to enter gentle into this good night? Why should we, the attorneys, deny the advancements of our generation, when some expertise voices claim to our extinction?

Considering the reasons explained by the Law Society in the United Kingdom, truly, there is no algorithm to replace the lawyers³⁹, yet, and must be discussed previously in order to undertake any possible challenge.

However, it is important to say that there is 79% of artificial intelligence algorithms outcome by prediction, at this moment, to undertake human rights decisions⁴⁰. Potentially, the legal realism and legal formalism might inspire different theses because of the data discoveries.

To summarize this section from the research proposal, in every single epoch of the History, plural-open perspectives have been studied in the Law, but nothing compared to a cognitive-applied engineering perspective where the Law is under technology pressure. Therefore, the definition of this epoch opens an opportunity for being studied and analyzed by a constitutional cross-culture perspective and deserves the most attention as possible in order to continue the educational and instructive paths of the democracy, the welfare, and the human dignity.

³⁹ SMITHERS, Jonathan, *Will lawyers be replaced by robots?*, June 23, 2016, available in <http://www.lawsociety.org.uk/news/blog/will-lawyers-be-replaced-by-robots/>

⁴⁰ AI predicts outcomes of human rights cases, October 23, 2016, available in <http://www.bbc.com/news/technology-37727387>

4. *Hypothesis and Objectives of the study.*

According to the research proposal and the justification explained, the purpose of this thesis is to demonstrate that “*Justice is a cognitive capacity to solve legal problems.*”

In order to corroborate the previous statement, this protocol purposes:

One, to design an integrative model of actions and reactions that choose the best Law-legal decision as possible in order to solve any problem;

Two, to undertake available prototypes and applied engineering projects who conciliate the expectations and realities for the best Law-decision as possible; and

Three, to unify the components of Law as an *art of combinations* in order to amplify the Justice proposition for every person of the world, in a cross-culture permanent action, through the progressive deployment of intelligent agents.

5. *Chapters, literature and research review (tentative script).*

The research proposal establishes three chapters in order to demonstrate the hypothesis:

1. The construction of a legal model based on cognitive technology. (*Law and Cognition*)
2. The applications of intelligent agents in the Legal system. (*Law and Applied Engineering-AI-AGI-Technology*)
3. The progressive approach of the Law from the art of combinations. (*Law-Futurism and Justice*)

In the first chapter, (*Law and Cognition*) the purpose of the thesis moves through the interactions between the cognitive arts and the Law, in order to establish the equation, algorithm or general thesis of Justice.

There are challenges through this chapter, especially where other arts are required to corroborate the thesis. However, an attempt to solve this problem is using the topics advancement, which is truly valuable for the legal argumentation and the development of algorithms.

Furthermore, it is important to say that the model proposed in the **Appendix** uses a binary model, similar to the model used by University College London scientists in order to predict the outcome of the European Court of Human Rights decisions.

Concisely, this chapter will seek treaties, studies and analysis from the Justice under a binary perspective.

During the second chapter (*Law and Applied Engineering-AI-AGI-Technology*), the prototypes are analyzed and compared to the constitutional universal method in order to seek the advantages and alternatives to conciliate the expectations and realities of the engineering process into Law.

This chapter might gather the most as possible of cognitive tools, applied technology and potential discoveries that will expose the meaning of the proposition through the previous binary model (0 to 1 probability as Justice).

The third and final chapter (*Law-Futurism and Justice*), attempts to establish potential regulation through the deployment of intelligent agents in alternative possible scenarios.

However, the meaning of the virtue and the concept itself will reinforce the potential threats our world will face if, and only if, the regulations or the expectations of these intelligent agents, are not interdependent to the correctness concept.

It is important to say that one of the literature majors who inspires this project is the academic treaty of Gottfried W. Leibniz *Dissertation of the art of combinations*, as one of the pioneers of the technological advancement we have nowadays and the potential, crucial components, which set with credibility, the foundations of these reasons.

Neither is discarded nor is condemned to this reason, even though any potential discussion to opened philosophical questions and eternal questions,

especially those that infer to the Justice under this *binary perspective*, in order to maximize the virtue the best as possible.

6. *Research Method(s)*.

According to the nature of this topic, the methods that will be used in order to corroborate the hypothesis and the objectives are:

- Applied modeling/algorithms to demonstrate the hypothesis, (machine ethics algorithm/ engineering applied algorithm). The applied modeling is one who analyzes binary modes.
- Applied Law comparing interpretation through constitutional universal doctrine (Poetry and Culture).
- Applied cross-culture Law method to the entrepreneurs and prototypes used with intelligent systems in Law.

It is important to say that these methods are *nonlimiting declarative*, that said, this proposal is open to other empirical methods that could conciliate the interaction between intelligent agents and Law, but taking into account the universal constitutional doctrine and the culture method as the basis of that approach.

7. *Data Collection, Analysis, and Evaluation of Data (tentative empiric research)*.

The research proposal considers open sources to undertake enough evidence, to demonstrate the thesis hypothesis. For those reasons:

- This paper ponders a Cross/Culture legal interpretation applied with an advanced method of networking to a global audience in order to collect enough data as possible.
- This text studies potential visits to German centers with applied research in artificial intelligence, for instance, *German Research for Artificial Intelligence* and other Bavarian companies and centers, like Siemens and *IBM WATSON IoT Munich Center*.

- This research proposal contemplates cross-culture experiences and open dialogs with Strategic Centers (UK-USA), entrepreneurs (Hanson Robotics, ROSS Intelligence) and others Law researchers (International Association of Artificial Intelligence and Law).

The paper itself opens an opportunity to move on worldwide and to cross information through cross-culture encounters, in order to write the thesis.

8. *Bibliography.*

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9. *Timetable.*

- a) Year 1, develop the 40% of the thesis content (*the design of chapter 1 and the advancement of chapter 2*).
- b) Year 2, completion of 80% of the thesis (*full chapters 1 and 2, ending the conclusions of chapter 3*).
- c) During the month 6 of the Year 3, 100% of the thesis, in order to publish it and dispute it through the next 6 months.

10. *Appendix.*

The NETLOGO Cartesian simulation has the next code:

```

to setup
  clear-all
  reset-ticks
  create-turtles 1 [pen-down]
end
to proceso
  ask turtles [set heading 90]
end
to func
  tick
  ask turtles [ set heading (heading + (caso / 2) -
  (random caso))forward 1]
end

```

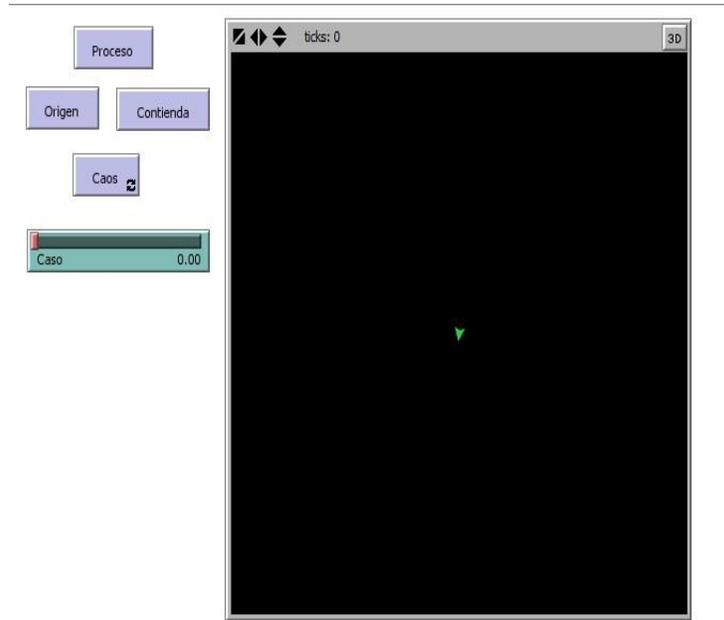


Figure 1. NETLOGO Cartesian simulation.

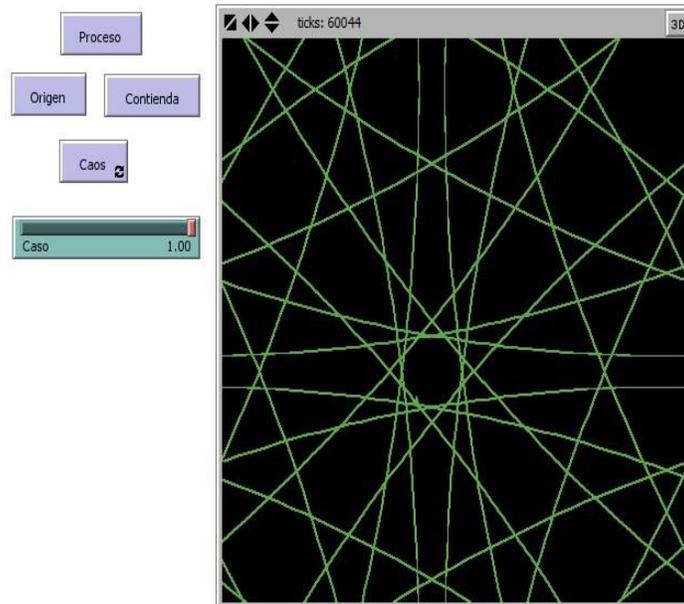


Figure 2. NETLOGO Cartesian simulation with 1 probability data.