# ETHICS AND EMERGING TECHNOLOGY, A.I., IOT, AND 3-D PRINTING

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# USPTO OCTOBER 2020 COLLECTION OF PUBLIC COMMENTS ON AI AND IP POLICY

- Part of on-going world-wide effort to assess and react to AI's impact on IP.
- Addressed many substantive patent law issues touched on in the paper and presentation.
- Identified a lot of questions... and gave very few answers.
  - No clear and long-lasting definition of "AI."
  - Statutory language "answers" some questions, though the answers raise more questions.
    - E.g., a text created by AI may be subject to copyright by someone/some people depending on whether their involvement was like someone staging a photograph (and unlike a monkey doing so!).
    - E.g., a text created by AI may subject a person to copyright infringement if she/they were involved "enough" to directly or contributorily infringe.

# DISTINCT ISSUES TO CONSIDER

- Must you, or must you not, use AI-drafting aids?
- Are patent laws able to deal with AI as an inventor and what can you do now to avoid problems?
- Are patent laws sufficiently open to patenting AI-based inventions -- and what can you do now to increase odds of eligibility?
- Is the patent system fast enough given the increase in innovation and its speed and what can you do now to speed things up (or slow them down for competitors)?
- Do patent laws adequately protect against infringement (of patents and other IP rights) by 3D printers and what can you do now to increase protection?

# YOU MUST USE (OR NOT) THESE TECHNOLOGIES ETHICALLY

- All state rules require competency and reasonable care to protect client confidences.
- ABA Model Rules and some state rules have specific requirements relating to technology:
  - Lawyers must "keep abreast of changes in the law and its practice, including the benefits and risks associated with relevant technology...." Model Rule 1.1, cmt. 8.
  - "A lawyer shall make reasonable efforts to prevent the inadvertent or unauthorized disclosure of, or unauthorized access to, information relating to the representation of a client." Model Rule 1.6(c).
- Two states now require tech-specific CLE.
- While no court has (yet) held the standard of care requires AI, competency may require use of a particular service in a matter... if it is ethical to use it!

# TO USE OR NOT TO USE, THAT IS THE (FIRST) QUESTION

- Legal research (keycite/instacite)
- Electronic discovery/predictive coding (daggeranalytics)
- Litigation analysis/predictive analysis (Lex Machina; Ravel Law)
- Contract review/management (Cortical.io)
- Basic brief writing (Ross Intelligence)
- Contract drafting (LawGeex)
- Patent application drafting (specif.io)

# IF THE SERVICE "WORKS," THEN PROS AND CONS

- ABA resolved lawyers "have a duty to identify the technology that is needed to effectively represent the client, as well as to determine if the use of such technology will improve service to the client." ABA Res. 112 (Aug. 2019).
- Reported experiment: LawGeex versus lawyers to review an NDA: the lawyers took 92 minutes to finish reviewing the contracts but LawGeex only needed 26 seconds... and it was more accurate!
- Two years ago, to see how well it worked, I used a patent drafting service, and here's what happened.

## DOES THE SERVICE "WORK?"

• Backstory.

- I used my free pass to see how well specif.io worked.
- Here's what I submitted and AI invented (more on that in a moment).

# I SUBMITTED ONLY THIS TO SPECIF.IO

A system configured for routing communications in a computer network, the system comprising one or more hardware processors configured by machine-readable instructions to:

- 1. receive a selection to provision a master network appliance on a computer network at management console service at a network appliance;
- 2. identify that communications can be sent over a backplane at the network appliance to at least one other network appliance, wherein the backplane is a low latency link between the network appliance and the at least one other network appliance that provides a dedicated bandwidth for communications between the network appliance and the at least one other network appliance;
- 3. identify an internet protocol address of the at least one other network appliance, wherein the at least one other network appliance is a slave network appliance to the master network appliance; and
- 4. provision configuration data to the slave network appliance by the master network appliance, wherein the configuration data identifies a topology of the computer network, the topology of the computer network including a first firewall, a first switch, the first firewall communicates with the first switch over a first network communication interface at the first switch, and the switch communicates with the master network appliance over a second communication
- 5. interface at the first switch and communicates with the slave network appliance over a third network communication interface at the master network appliance.

# AI WROTE THE SPECIFICATION

### SYSTEMS AND METHODS FOR ROUTING COMMUNICATIONS IN A COMPUTER NETWORK

#### FIELD OF THE DISCLOSURE

(01) The present disclosure relates to systems and methods for routing communications in a computer network. BACKGROUND

### (02) [[INSERT BACKGROUND SECTION]] SUMMARY

Patent Application Attorney Docket No. XXX-XXX Client Ref. XXXXX

instructions including a module that is the same as or similar to slave network appliance provisioning module 114, in accordance with one or more implementations.

# AI WROTE 15 PAGES...

(03) One aspect of the present disclosure relates to a system configured for routing communications in a computer network. The system may include one or more hardware processors configured by machinereadable instructions. The processor(s) may be configured to receive a selection to provision a master network appliance on a computer network at management console service at a network appliance. The processor(s) may be configured to identify that communications can be sent over a backplane at the network appliance to at least one other network appliance. The backplane may be a low latency link between the network appliance and the at least one other network appliance that provides a dedicated bandwidth for communications between the network appliance and the at least one other network appliance. The processor(s) may be configured to identify an internet protocol address of the at least one other network appliance. The at least one other network appliance may be a slave network appliance to the master network appliance. The processor(s) may be configured to provision configuration data to the slave network appliance by the master network appliance. The configuration data may identify a topology of the computer network. The topology of the computer network may include a first firewall, a first switch. The first firewall may communicate with the first switch over a first network communication interface at the first switch. The switch may communicate with the master network appliance over a second communication interface at the first switch and communicates with the slave network appliance over a third network communication interface at the master network appliance.

(04) Another aspect of the present disclosure relates to a method for routing communications in a computer network. The method may include receiving a selection to provision a master network appliance on a computer network at management console service at a network appliance. The method may include identifying that communications can be sent over a backplane at the network appliance to at least one other network appliance. The backplane may be a low latency link between the network appliance and the at least one other network appliance that provides a dedicated bandwidth for communications between the network appliance and the at least one other network appliance. The method may include identifying an internet protocol address of the at least one other network appliance. The at least one other network appliance may be a slave network appliance to the master network appliance. The method may include provisioning configuration data to the slave network appliance by the master network appliance. The configuration data may identify a topology of the computer network. The topology of the computer network may include a first firewall, a first switch. The first firewall may communicate with the first switch over a first network communication interface at the first switch. The switch may communicate with the master network appliance over a second communication interface at the first switch and communicates with the slave network appliance over a third network communication interface at the master network appliance.

(05) These and other features, and characteristics of the present technology, as well as the methods of operation and functions of the related elements of structure and the combination of parts and economies of manufacture, will become more apparent upon consideration of the following description and the appended claims with reference to the accompanying drawings, all of which form a part of this specification, wherein like reference numerals designate corresponding parts in the various figures. It is to be expressly understood, however, that the drawings are for the purpose of illustration and description only and are not intended as a definition of the limits of the invention. As used in the specification and in the claims, the singular form of "a", "an", and "the" include plural referents unless the context clearly dictates otherwise.

(06) FIG. 1 illustrates a system configured for routing communications in a computer network, in accordance with one or more implementations.

(07) FIG. 2 illustrates a method for routing communications in a computer network, in accordance with one or more implementations.

#### DETAILED DESCRIPTION

(08) FIG. 1 illustrates a system 100 configured for routing communications in a computer network, in accordance with one or more implementations. In some implementations, system 100 may include one or more servers 102. Server(s) 102 may be configured to communicate with one or more client computing platforms 104 according to a client/server architecture and/or other architectures. Client computing platform(s) 104 may be configured to communicate with other client computing platforms via server(s) 102 and/or according to a peer-to-peer architecture and/or other architectures. Users may access system 100 via client computing platform(s) 104.

(09) Server(s) 102 may be configured by machine-readable instructions 106. Machine-readable instructions 106 may include one or more instruction modules. The instruction modules may include computer program modules. The instruction modules may include one or more of a selection receiving module 108, a communication identifying module 110, an internet protocol address identifying module 112, a slave network appliance provisioning module 114, and/or other instruction modules. (10) Selection receiving module 108 may be configured to receive a selection to provision a master network appliance on a computer network at management console service at a network appliance.

(11) Communication identifying module 110 may be configured to identify that communications can be sent over a backplane at the network appliance to at least one other network appliance. The backplane may be a low latency link between the network appliance and the at least one other network appliance that provides a dedicated bandwidth for communications between the network appliance and the at least other network appliance.

(12) Internet protocol address identifying module 112 may be configured to identify an internet protocol address of the at least one other network appliance. The at least one other network appliance may be a slave network appliance to the master network appliance.

(13) Slave network appliance provisioning module 114 may be configured to provision configuration data to the slave network appliance by the master network appliance. The configuration data may identify a topology of the computer network. By way of non-limiting example,

For example, such electronic communication links may be established, at least in part, via a network such as the Internet and/or other networks. It will be appreciated that this is not intended to be limiting, and that the scope of this disclosure includes implementations in which server(s) 102, client computing platform(s) 104, and/or external resources 116 may be operatively linked via some other communication media.

(15) A given client computing platform 104 may include one or more processors configured to execute computer program modules. The computer program modules may be configured to enable an expert or user associated with the given client computing platform 104 to interface with system 100 and/or external resources 116, and/or provide other functionality attributed herein to client computing platform(s) 104. By way of non-limiting example, the given client computing platform 104 may include one or more of a desktop computer, a laptop computer, a handheld computer, a tablet computing platform, a NetBook, a Smartphone, a gaming console, and/or other computing platforms.

(16) External resources 116 may include sources of information outside of system 100, external entities participating with system 100, and/or other resources. In some implementations, some or all of the functionality attributed herein to external resources 116 may be provided by resources included in system 100. (17) Server(s) 102 may include electronic storage 118, one or more processors 120, and/or other components. Server(s) 102 may include communication lines, or ports to enable the exchange of information with a network and/or other computing platforms. Illustration of server(s) 102 in FIG. 1 is not intended to be limiting. Server(s) 102 may include a plurality of hardware, software, and/or firmware components operating together to provide the functionality attributed herein to server(s) 102. For example, server(s) 102 may be implemented by a cloud of computing platforms operating together as server(s) 102.

(18) Electronic storage 118 may comprise non-transitory storage media that electronically stores information. The electronic storage media of electronic storage 118 may include one or both of system storage that is provided integrally (i.e., substantially non-removable) with server(s) 102 and/or removable storage that is removable connectable to server(s) 102 via, for example, a port (e.g., a USB port, a firewire port, etc.) or a drive (e.g., a disk drive, etc.). Electronic storage 118 may include one or more of optically readable storage media (e.g., magnetic tape, magnetic tape, magnetic tape, magnetic atope, media (e.g., flagsh drive, etc.), electrical charge-based storage media (e.g., EEPROM, RAM, etc.), solid-state storage media (e.g., flagsh drive, etc.), and/or other electronically readable storage media. Electronic storage 118 may include one or more virtual storage resources (e.g., cloud storage, a virtual private network, and/or other virtual storage resources). Electronic storage 118 may store software algorithms, information determined by processor(s) 120, information received from client computing platform(s) 104, and/or other information that enables server(s) 102 to function as described herein. (19) Processor(s) 120 may be configured to provide information, an analog circuit designed to process information, a state machine, and/or other mechanisms for electronically processing information. Although processor(s) 120 is shown in FIG. 1 as a single entity, this is for illustrative purposes only. In some implementations, processor(s) 120 may include a plurality of devices operating in coordination. Processor(s) 120 may be configured to execute modules 108, 110, 112, 114, and/or other modules. Processor(s) 120 may be configured to execute modules 108, 110, 112, 114, and/or other modules. Processor(s) 120 may be configured to execute modules 108, 110, 112, 114, and/or other modules. Processor(s) 120 may be configured to execute modules 108, 110, 112, 114, and/or other modules. Processor(s) 120 may be

(20) It should be appreciated that although modules 108, 110, 112, and 114 are illustrated in FIG. 1 as being implemented within a single processing unit, in implementations in which processor(s) 120 includes multiple processing units, one or more of modules 108, 110, 112, and/or 114 may be implemented remotely from the other modules. The description of the functionality provided by the different modules 108, 110, 112, and/or 114 described below is for illustrative purposes, and is not intended to be limiting, as any of modules 108, 110, 112, and/or 114 may provide more or less functionality than is described. For example, one or more of modules 108, 110, 112, and/or 114 may be eliminated, and some or all of its

(21) FIG. 2 illustrates a method 200 for routing communications in a computer network, in accordance with one or more implementations. The operations of method 200 presented below are intended to be illustrative. In some implementations, method 200 may be accomplished with one or more additional operations not described, and/or without one or more of the operations discussed. Additionally, the order in which the operations of method 200 are illustrated in FIG. 2 and described below is not intended to be limiting.

(22) In some implementations, method 200 may be implemented in one or more processing devices (e.g., a digital processor, an analog processor, a digital circuit designed to process information, an analog circuit designed to process information, a state machine, and/or other mechanisms for electronically processing information). The one or more processing devices may include one or more devices executing some or all of the operations of method 200 in response to instructions stored electronically on an electronic storage medium. The one or more processing devices may include one or more devices configured through hardware, firmware, and/or software to be specifically designed for execution of one or more of the operations of method 200.

(23) An operation 202 may include receiving a selection to provision a master network appliance on a computer network at management console service at a network appliance. Operation 202 may be performed by one or more hardware processors configured by machine-readable instructions including a module that is the same as or similar to selection receiving module 108, in accordance with one or more implementations. (24) An operation 204 may include identifying that communications can be sent over a backplane at the network appliance to at least one other network appliance. The backplane may be a low latency link between the network appliance and the at least one other network appliance that provides a dedicated bandwidth for communications between the network appliance and the at least one other network appliance. Operation 204 may be performed by one or more hardware processors configured by machine- readable instructions including a module that is the same as or similar to communication identifying module 110, in accordance with one or more implementations.

(25) An operation 206 may include identifying an internet protocol address of the at least one other network appliance. The at least one other network appliance may be a slave network appliance to the master network appliance. Operation 206 may be performed by one or more hardware processors configured by machine-readable instructions including a module that is the same as or similar to internet protocol address identifying module 112, in accordance with one or more implementations.

(26) An operation 208 may include provisioning configuration data to the slave network appliance by the master network appliance. The configuration data may identify a topology of the computer network. The topology of the computer network may include a first firewall, a first switch. The first firewall may communicate with the first switch over a first network communication interface at the first switch. The switch may communicate with the slave network appliance over a second communication interface at the first switch and communicates with the slave network appliance over a third network communication interface at the master network appliance. Operation 208 may be performed by one or more hardware processors configured by machine-readable

(27) Although the present technology has been described in detail for the purpose of illustration based on what is currently considered to be the most practical and preferred implementations, it is to be understood that such detail is solely for that purpose and that the technology is not limited to the disclosed implementations, but, on the contrary, is intended to cover modifications and equivalent arrangements that are within the spirit and scope of the appended claims. For example, it is to be understood that the present technology contemplates that, to the extent possible, one or more features of any implementation can be combined with one or more features of any other implementation.

Page 11 of 15

What is claimed is:

1. A system configured for routing communications in a computer network, the system comprising:

one or more hardware processors configured by machine-readable instructions to:

receive a selection to provision a master network appliance on a computer network at management console service at a network appliance;

identify that communications can be sent over a backplane at the network appliance to at least one other network appliance, wherein the backplane is a low latency link between the network appliance and the at least one other network appliance; identify an internet protocol address of the at least one other network appliance, wherein the at least one other network appliance is a slave network appliance to the master network appliance; and

identifying an internet protocol address of the at least one other network appliance, wherein the at least one other network appliance is a slave network appliance to the master network appliance; and

provisioning configuration data to the slave network appliance by the master network appliance, wherein the configuration data identifies a topology of the computer network, the topology of the computer network including a first firewall, a first switch, the first firewall communicates with the first switch over a first network communication interface at the first switch, and the switch communicates with the master network appliance over a second communication

interface at the first switch and communicates with the slave network appliance over a third network communication interface at the master network appliance.

#### ABSTRACT

Systems and methods for routing communications in a computer network are disclosed. Exemplary implementations may: receive a selection to provision a master network appliance on a computer network at management console service at a network appliance; identify that communications can be sent over a backplane at the network appliance to at least one other network appliance; identify an internet protocol address of the at least one other network appliance; and provision configuration data to the slave network appliance by the master network appliance.

Page 15 of 15

## OH! AI DRAFTED TWO FIGURES



## HOW TO USE AI ETHICALLY, THAT IS THE SECOND QUESTION

- Carefully read the TOS.
- Ensure that whatever rights the AI provider might have are assigned to your client.
- See my article "Ethics of Using Artificial Intelligence to Augment Drafting Legal Documents."

# WHAT IF TO DO WHEN AI INVENTS THINGS?

Working groups at USPTO, WIPO, AIPLA, other organizations are studying profound issues including:

- Will everything be obvious/lack an inventive step? (Or do we need an "obvious for a human" standard so real folks can still get patents? What if we limit AI to what a "person of ordinary skill" could remember?)
  - USPTO notes that "person" of ordinary skill excludes machines but does that answer the question?
- What must be disclosed for enablement? On an IDS?
  - USPTO notes many say this is not that much of an issue but... will accused infringers agree?
- If AI "invented" something, who is the inventor?
  - USPTO notes many think people will be involved enough in the process for a while to exclude machines as such but who then is the inventor? The person who collected the data set? Chose which data to use? Created the algorithm(s)? Some, all, or none of the above?

# DECISION ON PETITION IN APPLICATION 16/524,350

- Applicant filed application in USPTO, UKIPO, and EPO listing "Dabus" as inventor and stated Dabus was a "creativity machine."
- USPTO issued Notice to File Missing Parts based on failure to list each inventor by his or her legal name.
  - Applicant petitioned for supervisory reconsideration.
  - In May 2020 PTO published decision on petition denying reconsideration, holding under the plain text of the patent act only natural persons could be inventors.
  - In a key passage...

# USPTO POSITION

Petitioner argues that the December 17, 2019 petition decision presents a line of reasoning that suggests "the referenced statutes are intended to compel an applicant to name a natural person even where the person does not meet the inventorship criteria."<sup>20</sup> However, petitioner misunderstands the petition decision. The petition decision of December 17, 2019 explains that 35 U.S.C. § 100(f) defines the term "inventor" as the individual who invented or discovered the subject matter of the invention. Identifying a natural person, who did not invent or discover the subject matter of the invention, as the inventor in a patent application would be in conflict with the patent statutes. Accordingly, the petition decision of December 17, 2019 does not suggest that an applicant is compelled to list a natural person as an inventor who does not meet the inventorship criteria.

# GO BACK TO MY PATENT APPLICATION: SCYLLA AND CHARYBDIS?

- I can't name AI as the inventor.
- I didn't invent whatever is in the specification.
- So what do I do if I claim that, especially when EPO and UKIPO took same position as USPTO on this application?

# IF YOU ARE PROSECUTING APPS ON AI-BASED INVENTIONS

- Most AI-related patent filings are made in the US (152,981 apps) and China (137,010).
- In US, SCOTUS' view of Section 101 is the primary hurdle to patentability -- though the 2019 response by USPTO in its Guidelines might help.
- China seems more open to patentability.
- EPO approach seems similar to US

### WHAT TO DO WHEN PROSECUTING AN AI-INVENTION

- Draft AI-compliant claims (like this one from the USPTO Guidance):
  - A computer-implemented method of training a neural network for facial detection comprising: collecting a set of digital facial images from a database; applying one or more transformations to each digital facial image including mirroring, rotating, smoothing, or contrast reduction to create a modified set of digital facial images; creating a first training set comprising the collected set of digital facial images, the modified set of digital facial images, and a set of digital non-facial images; training the neural network in a first stage using the first training set; creating a second training set for a second stage of training comprising the first training set and digital nonfacial images that are incorrectly detected as facial images after the first stage of training; and training the neural network in a second stage using the second training set.
- Think about what disclosures and support an accused infringer would argue are required to support (think about that claim!).
- Emphasize specific technical, practical applications of the invention in the application.

### WHAT TO DO WHEN PROSECUTING AN AI INVENTION

- Use AI to avoid anti-AI art groups.
- BUT do not be stupid (an anecdote).



### WHAT TO DO WHEN PROSECUTING AN AI INVENTION

- Recognize there is no predictability largely because there are very few judicial decisions and their outcomes turn on specificity of claim language and the particular CAFC panel.
- Explain the risks to the client and evaluate whether patenting is the best route, especially considering
  - Where SCOTUS has taken patent law these past 20 years; and
  - The shortening of both time-on-market (for innovators) and time-to-market (for both innovators and infringers).

# IS THE SYSTEM FAST ENOUGH WITH FASTER INNOVATION... AND FASTER INFRINGEMENT

- IoT is permitting gathering real-time data on (for example) product performance, drug efficacy, defects, and more.
- AI is permitting analysis of that vast amount of data and extraction of "real world useful information."
- Together they are leading shorter time-to-market for new products, so that life cycles look like spikes, not bell-curves.
  - Even Pharma is beginning to move this way.
- But... that same power means shorter time-to-market for infringers.

# PATENTING IS FASTER





# AFTER 2 YEARS A PATENT ISSUES AND THEN..

- An IPR, a stay.
- Then, about 18 months later (if some claims survive) litigation restarts.
- And then if the patentee prevails at trial and on appeal... the patentee obtains only past money damages if the accused product's life cycle is over.

# WHAT TO DO FOR CLIENTS PATENTING PRODUCTS WITH SHORT LIFE CYCLES

- Discuss whether patenting is the best option (and, yes, there are other reasons to get patents besides enforcement).
- Discuss Track One.
- Look at 35 USC 154(d) to see if you can prosecute to perhaps obtain damages from date of publication (hard to do but....).
- Analyze whether to slow down competitors through third party submissions or informal disclosure of material information.
  - QPIDS if that happens to you.

# WHAT TO DO ABOUT 3D PRINTERS?

• Because of exponential increases in processing power, bandwidth, and the exponentially decreasing cost and power of CAD, 3D printers have put us on the edge of the "maker economy."

# MASSIVE, DISBURSED, HARD TO SPOT INFRINGEMENT

- 3D printers with CAD "digitize" things that we can "print"
  - Toys
  - Phone cases
  - Guns
  - Guitars
  - Pipes
  - Helicopter parts
  - Perfectly fitting clothes, shoes, etc.
  - And (already) biological material and lots more... even if it is protected by IP.
- And there are many file-sharing sites.
  - CADster<sup>TM</sup> coming your client's way soon?



# **3D PRINTING: WHO INFRINGES A PRODUCT CLAIM?**

- Inducement requires specific intent to induce a third party to infringe.
  - CAD file sharing site: No.
  - 3D printer maker: No.
- Contributory infringement requires the product have no substantial non-infringing uses.
  - CAD file sharing site: No.
  - 3D printer maker: No.
- Direct infringement:

- Consumer infringe? Yes, so sue every downloader, like the music industry did.
- CAD file infringe? Holbrook & Osborn argue yes.
  - CAD file sharing site: H&O argue free transfer of a CAD file is "selling" the claimed invention...

# MY PREDICTION OF THE JUDICIAL RESPONSE: THE FILE IS NOT THE OBJECT



# WHAT TO DO ABOUT 3D PRINTERS

- Patents are including dependent claims covering "the product of claim 1 printed by a 3D printer..."
- Consider copyright protection?
- Advise clients to use holograms/other means to police against counterfeiters/quality control?
- Advise clients to monitor file sharing sites?

## WHAT ABOUT THE BABY LAWYERS?

- AI now is focused on eliminating lawyer time spent on close-reading, attention to detail.
- A quote from a July 13, 2020 article: "You would normally give that work to a trainee and it would take a few hours to do it, and they wouldn't do it particularly well. Now it can be done in a matter of minutes."
- Could this "gap" however welcome it is to avoid drudgery lead, as some predict, "to an increase in mistakes made by these junior lawyers further down the line?"

# WHAT <del>WILL</del> DOES SUCCESSFUL LAWYERING REQUIRE?

- Leveraging technology to reduce costs.
- Different lawyering jobs?
- Fewer lawyering jobs?
- Skills that will matter:
  - Interpersonal skills
  - Knowledge management
  - Technology expertise
  - "Networking"
  - Continual learning.

## THANK YOU

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38