

Artificial Intelligence and Robotics in Digital Forensics

Ronald L. Chichester, Esq.

August 21, 2019

The Woodlands, Texas

Disclaimer

I am a lawyer...

... but I'm not *your*
lawyer

If this were legal advice, it
would be followed by a bill.





US007991886B1

(12) **United States Patent**
Wu

(10) **Patent No.:** **US 7,991,886 B1**

(45) **Date of Patent:** **Aug. 2, 2011**

(54) **METHOD AND APPARATUS FOR
INDIVIDUAL-CENTRIC USE OF THE
INTERNET**

(75) Inventor: **Guangdian Gordon Wu**, Houston, TX
(US)

(73) Assignee: **Base Base Corporation**, Houston, TX
(US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 886 days.

(21) Appl. No.: **09/822,097**

(22) Filed: **Mar. 30, 2001**

(51) **Int. Cl.**
G06F 15/173 (2006.01)

(52) **U.S. Cl.** **709/225**; 709/203; 709/217; 709/223;
709/224

(58) **Field of Classification Search** 709/200,
709/202, 203, 218, 205, 217, 223, 246, 224,
709/225; 705/26; 707/6, 9, 100, 203
See application file for complete search history.

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Primary Examiner — Ramy M Osman

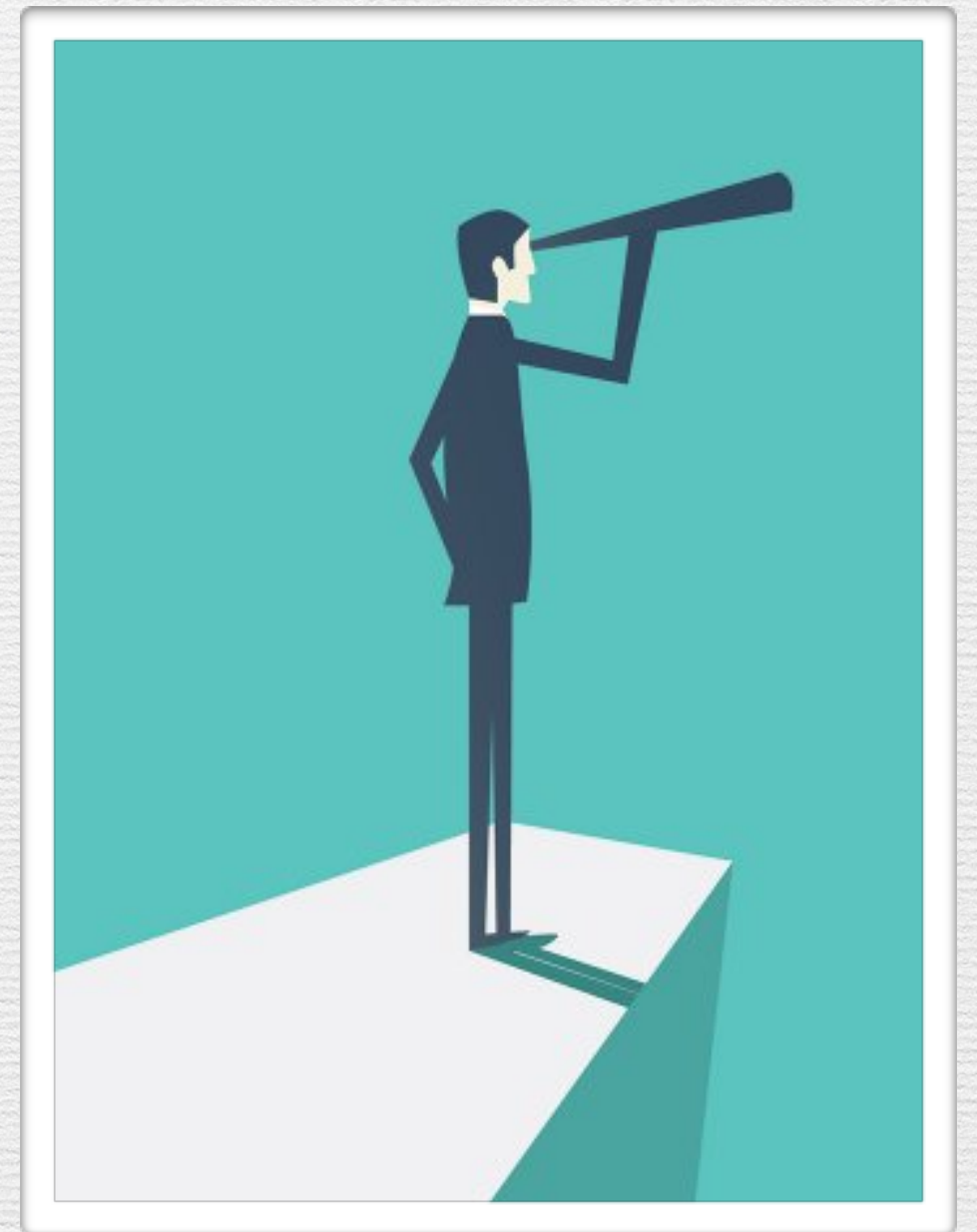
(74) *Attorney, Agent, or Firm* — Baker Botts, L.L.P.

(57) **ABSTRACT**

An individual-centric Internet is provided with a personal base process on a computer system. The computer system is equipped with multiple nodes that are interconnected to facilitate the communication between the nodes. The personal base service includes a personal base instance that is typically in software on at least one of the nodes of the computer system, such as a network. The personal base instance is designed to communicate with a user by any digital or analog device, such as a telephone, personal computer, personal digital assistant, or the like. A personal base server is instantiated on at least one of the nodes on the computer system and is in operative communication with the personal base instance. The personal base server is used to communicate with other personal bases or other nodes on the computer system or network in order to insulate the user from

Overview

- Definitions
- Background
- Use Cases
- The Forensic Analysis of AI & Robots
- Integrating AI into Your Tools
- Questions




Definitions

- **Artificial Intelligence**
 - The field of study that gives computers the ability to learn without being explicitly programmed.
- **Robotics**
 - Robotic Process Automation ('RPA') is the technology that allows anyone today to configure computer software, or a “robot” to emulate and integrate the actions of a human interacting within digital systems to execute a business process.

Definitions

- **Law**
 - The regulation of actions (by an authority) between individuals within a jurisdiction


 SINCE 1828

JOIN MWU | GAMES | BROWSE THESAURUS | WORD OF THE DAY | WORDS AT PLAY

law

DICTIONARY | THESAURUS

law noun

\ 'lò  \

Definition of *law* (Entry 1 of 6)

1 a (1) : a binding custom or practice of a community : a rule of conduct or action prescribed (see [PRESCRIBE sense 1a](#)) or formally recognized as binding or enforced by a controlling authority

(2) : the whole body of such customs, practices, or rules
// The courts exist to uphold, interpret, and apply the *law*.

(3) : [COMMON LAW](#)

Background

Towards Machine Agency: a Philosophical and Technological Roadmap

J Storrs Hall

March 30, 2012

Abstract

A key question which will face fields of inquiry as diverse as philosophy, law, and even theology in the coming decades is that of machine agency. Simply put, at what point does the responsibility, legal or moral, for an act of a machine inhere in the machine itself instead of its (human) designers and builders? We examine in this context a selection of cognitive architectures for an artificial general intelligence, and compare them with various standards of autonomy, moral agency, and legal adulthood.

The Problem: Can a Machine be a Moral Agent?

The cause of thy sin is inevitably determined in heaven; this did Venus, or Saturn, or Mars: That man, forsooth, flesh and blood, and proud corruption, might be blameless; while the Creator and Ordainer of heaven and the stars is to bear the blame.

—Augustine

Currently it is more or less universally accepted that when a machine does something wrong, morally or legally, the fault lies with the machine's designers and builders, and not of the machine itself. The advance of robotics technology, however, is pushing us rapidly into a situation where this will not be so clearly true as it is today. There are several reasons for this trend:

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Digital Assistants Transforming Public Service

July 15, 2019

👁 3286

[AI and 5G](#)

When AI and 5G Combine, Watch For a New Generation of Applications

August 15, 2019



5G Will Require AI-Enabled Cybersecurity to Handle New Threats

August 1, 2019



AI at the 5G Wireless Network Edge

May 10, 2019



In AI, ML & Cloud Platform Moves, Intel Bins 5G Modems, Buys Omnitek

April 26, 2019



Why the Convergence of 5G and AI Intrigues this Venture

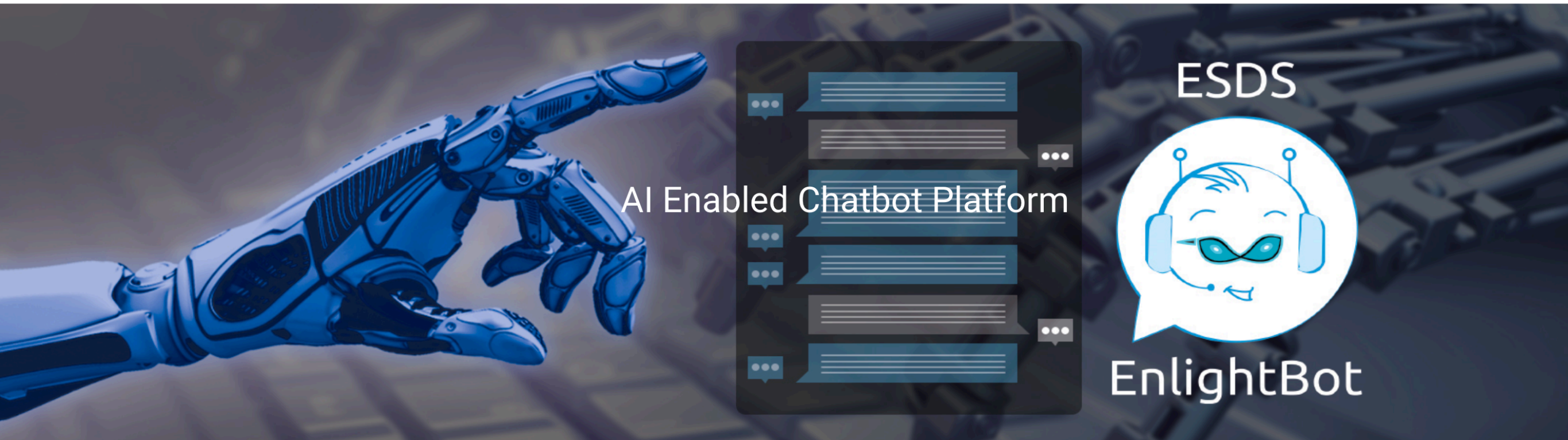
How to Use Artificial Intelligence to Create Evergreen Content



by Mike Gingerich



To many people, artificial intelligence is not a new term. AI has increasingly taken over many aspects of marketing, business management, and sales. In recent years, AI also plays an integral part in lead generation by



230+

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1st

AI Chatbot Installation for Largest Bank of India

ESDS EnlightBot **The Specialist Chatbot Platform**

ESDS launches EnlightBot, its much awaited Artificial Intelligence [AI] enabled Virtual

<https://www.esds.co.in/artificial-intelligence>

ARTIFICIAL AGENTS AND THE CONTRACTING PROBLEM: A SOLUTION VIA AN AGENCY ANALYSIS

Samir Chopra and Laurence White†

I. INTRODUCTION

Artificial agents, and the contracts they make, are ubiquitous. Every time we interact with a shopping website, we interact with a more or less autonomous artificial agent that queries the operator's database, uses our input to populate it, and sets out the terms of the transaction. Other than establishing the rules that the artificial agent must follow during transactions with customers, the operator does not exercise direct control over the agent's choices in particular cases, at least until the operator has a chance to confirm or reject the transaction entered into.¹ Websites that offer users agent-like functionality for their use in their activities online (such as comparing and recommending products, vendors, and services) are becoming increasingly common.² Current re-

† Samir Chopra is Associate Professor Department of Philosophy, Brooklyn College and the CUNY Graduate Center and received his Ph.D. in Philosophy from the CUNY Graduate center. Laurence White received both his LL.B. (with honors) and B.A. (with honors) from the University of Melbourne, Australia and would like to thank his partner Jane Brown for her constant support. Both authors extend their thanks to James Grimmelman for very useful comments.

Some Caselaw

- *United States v. Athlone Indus., Inc.*, 746 F.2d 977, id. at 979 (3d Cir. 1984) (stated that “robots cannot be sued” and discussed instead how the manufacturer of a defective robotic pitching machine is liable for civil penalties for the machine's defects.)
- *Taylor v. State*, 93 S.W.3d 487 (Tex. App. 2002) (About Tex.R. Evid. 801(a); “computer-generated information, whether on a display or paper, is simply not hearsay because it falls outside the strict language of the rule”)

Some Caselaw

- *American Library Ass'n, Inc. v. United States*, 201 F. Supp. 2d 401 (E.D. Pa. 2002) (“Notwithstanding their ‘artificial intelligence’ description, automated text classification systems are unable to grasp many distinctions between types of content that would be obvious to a human.”)
- *Go2Net, Inc. v. CI Host, Inc.*, 60 P.3d 1245 (Wash. Ct. App. 2003) (Defendant refused payment of royalty because an AI agent got the “impression” instead of a human. Court held that AI agent’s impression was not excluded in the contract, so the Plaintiff won.)

Some Caselaw

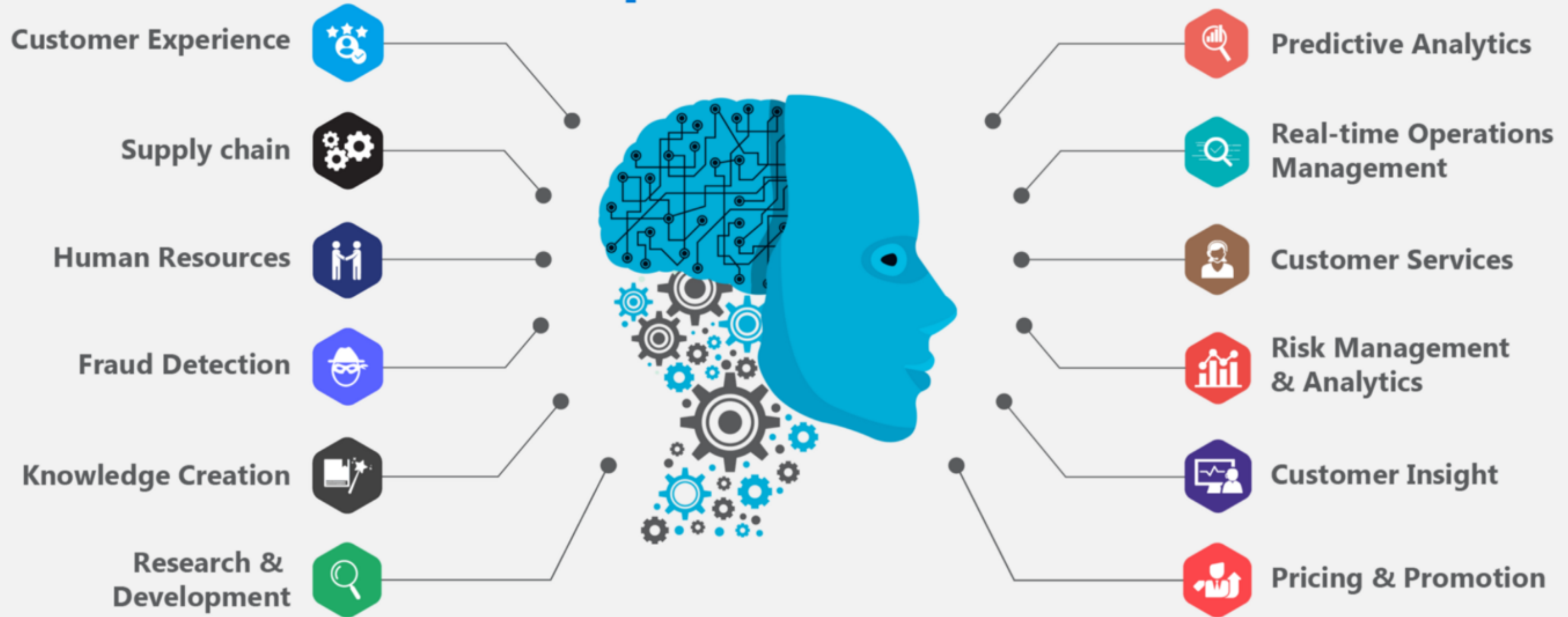
- *In re Ashley Madison Customer Data Sec. Breach Litig.*, 148 F. Supp. 3d 1378, 1380 (JPML 2015) (Use of a computer program to simulate human interaction could give rise to liability for fraud.)
- *United States v. James Hill, III*, 18-4660 (4th Cir. 2019) (Defendant argued that AI wasn't harmed, so his act couldn't fall under the commerce clause)

Some Caselaw

- *Hendricks v. United States*, 18-1063 (Fed. Cl. 2018) (“the Government would not respond to information concerning a breach of top secret information by an artificial intelligence computer system, i.e. 'consolidated Eagles Wrath'”)
- *National Security Counselors v. Central Intelligence Agency*, Civil Action No. 2011-0443 (D.D.C. 2013) (“Finally, the plaintiff argues that ‘[a]ny CIA professional who was familiar with the subject area of the request (computer science or, more specifically, artificial intelligence) would be able to easily determine which [CIA] components were likely to have responsive records.’”)

Use Cases for AI and Robotics

Top AI Use Cases



Source : WinWire via @BrianJohnson_01

https://medium.com/@Brian.johnson_62680/artificial-intelligence-ai-top-use-cases-and-technologies-used-today-3c22e1a63e78



Connected Contracting

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Loadsmart and Starsky Robotics make first Digital Freight Delivery



42



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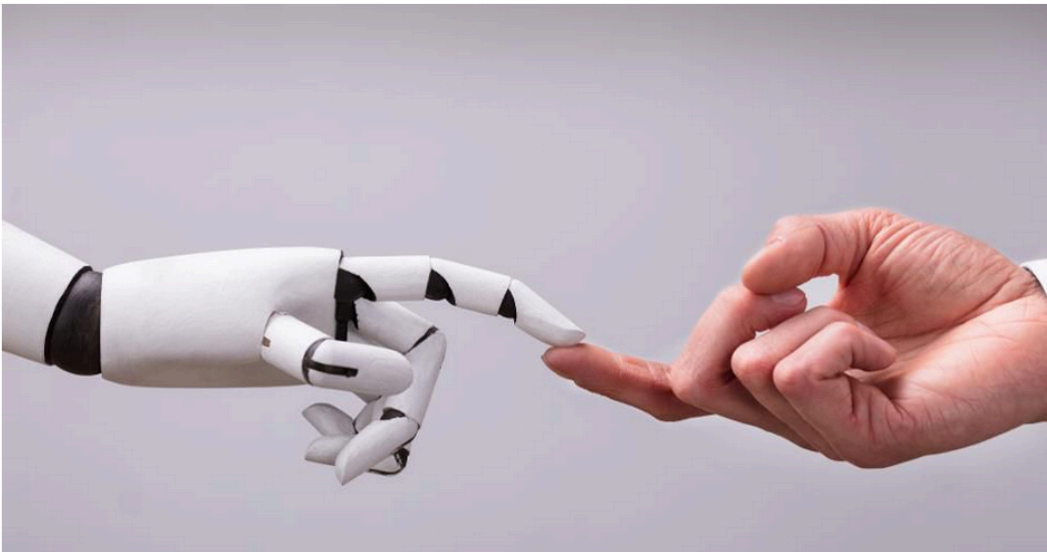
The Robots Are Coming To Corporate Finance

 **Patrick Taylor** Forbes Councils Member
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POST WRITTEN BY

Patrick Taylor

Founder and former CEO of [Oversight Systems](#), a provider of AI-powered risk management and compliance monitoring solutions.



[Class 1]

Robotic Process Automation

01



Rules Engine



Screen Scraping



Work Flow

[Class 2]



Cognitive Technologies

02

Processing of Unstructured Data and Base Knowledge

03

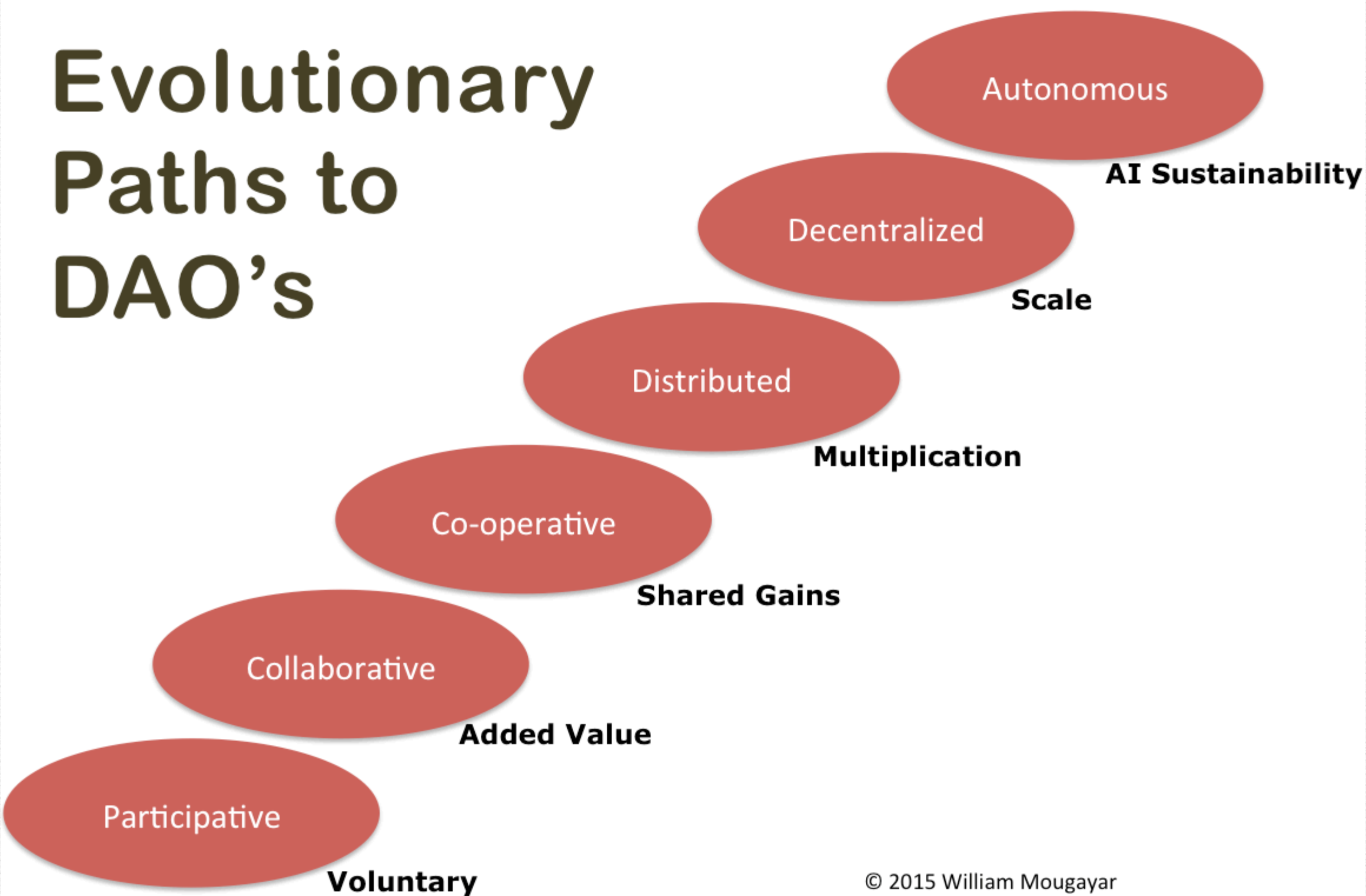
[Class 3]



Cognitive Automation



Evolutionary Paths to DAO's



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<https://www.coindesk.com/succeed-as-decentralized-autonomous-organization>

Forensics of AI & Robots

Forensics and AI/Robots

- AI might be classified as a “custodian” because it created the *work* under the Copyright & Patent Acts
- “The robot ate my homework” might have to be proven (or disproven)
- Some types of AI can “morph” so preservation of an instance of AI may be vital



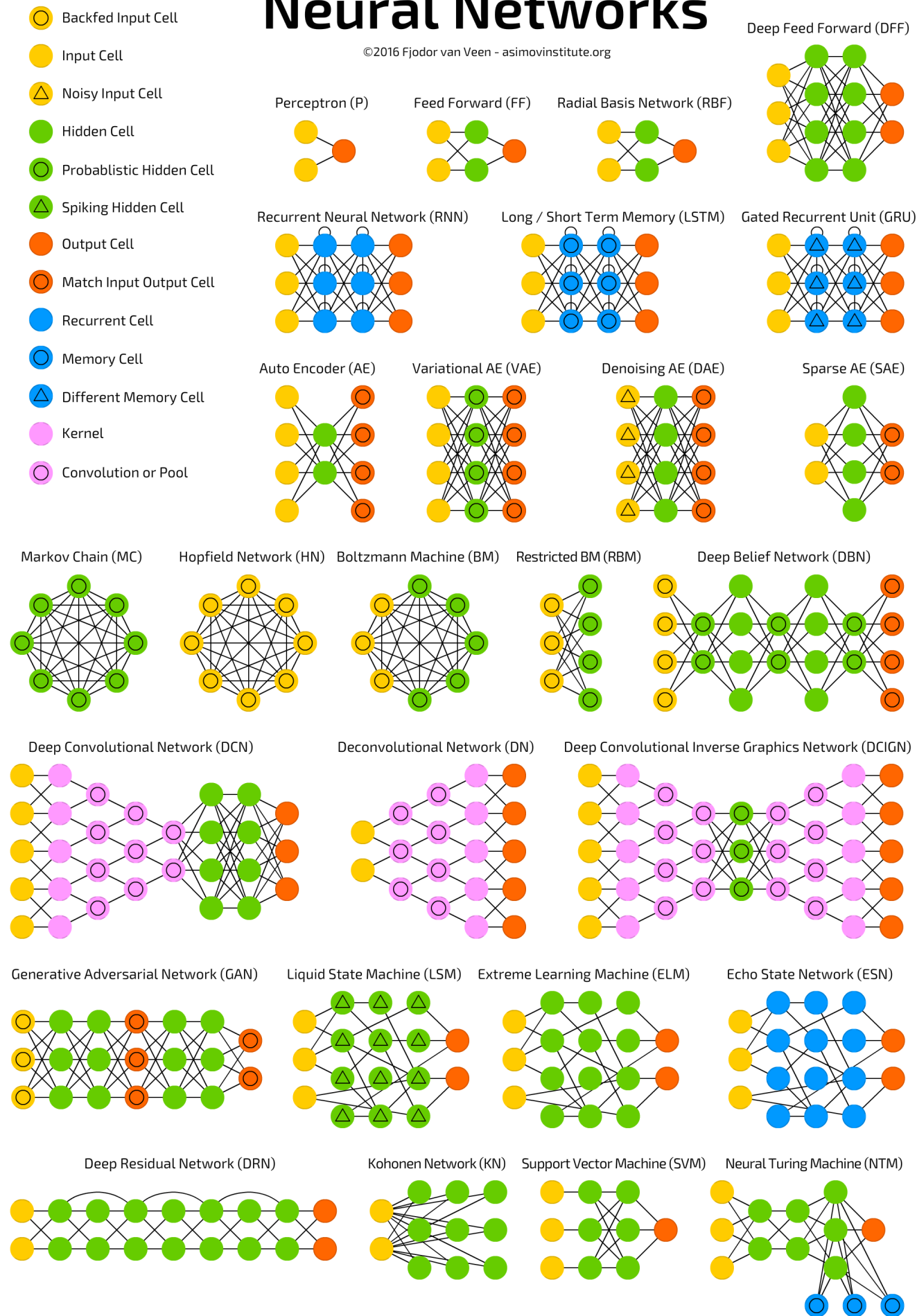
Forensics and AI/Robots

- Examination of AI may be hampered by lack of source code or method of modeling
- You may be called to verify that the robot performed “this or that act” (or not)
- Forensic preservation and examination of a robotic system, including external processors/devices



Neural Networks

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- You may be called upon to forensically examine a neural network
- Neural networks come in a wide variety of types and “layers”
- You may also have to review the data used to train the neural network
- You may be called upon to forensically examine the evolution of a product from a genetic algorithm

Integration with your tools

AI in Forensics Tools

- Can be used to automate standard tasks and gain competitive advantage
- Can be used to (further) blur the line between forensics and e-discovery
 - Broaden services to capture additional income
- Most AI tools are free and can be incorporated into company systems without royalties or permission



AI in Forensics Tools

- Generate your own AI tools using open source libraries
- Can create models to detect certain evidence in large datasets
 - Sexual harassment
 - Trade secret misappropriation
 - etc.



AI in Forensics Tools

- Provide a service to your client to use AI to detect illicit activity pre-performance or during-performance and triggering preservation of relevant evidence
 - Use a separate set of logs
 - Trigger email notifications
 - Determine what should be preserved
 - Make copy if custodian attempts to delete possibly-responsive data





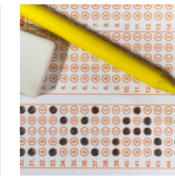
It's Been A Week —
See Also



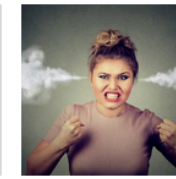
Colin Kaepernick
Settled His
Grievance, Jay-Z Is
Just Taking The
Money



What's Sad Is That
This Counts As
Tremendous
Progress For
Women In The



The Future Of The
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That Sucked! Now
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TECHNOLOGY

Judge Penalizes Lawyers For Not Using Artificial Intelligence

It may not be the most significant opinion, but it may be a sign of things to come.

By ROBERT AMBROGI

Jan 7, 2019 at 5:17 PM

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SHARES



Lawyers, be forewarned: In what could be a foreshadowing of things to come, a judge has penalized two lawyers for failing to use artificial intelligence.



<https://abovethelaw.com/2019/01/judge-penalizes-lawyers-for-not-using-artificial-intelligence/>



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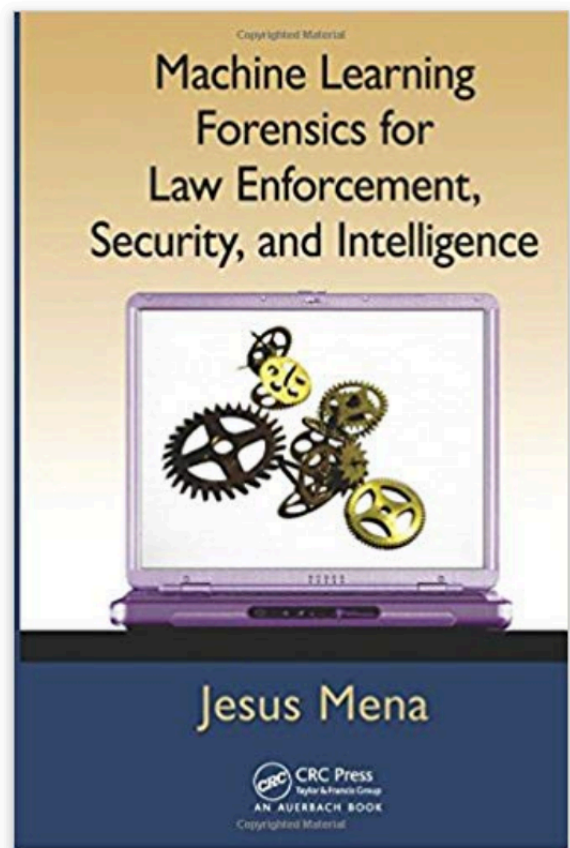
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Machine learning in computer forensics (and the lessons learned from machine learning in computer security)

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[Fabio Roli](#) [University of Cagliari, Cagliari, Italy](#)

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doi> [10.1145/2046684.2046700](#)



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Short paper



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In this paper, we discuss the role that machine learning can play in computer forensics. We begin our analysis by considering the role that machine learning has gained in computer security applications, with the aim of aiding the computer forensics community in learning the lessons from the



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 0

Machine Learning in Cybersecurity

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TECH

ARTIFICIAL INTELLIGENCE

ADOBE

Adobe is using machine learning to make it easier to spot Photoshopped images

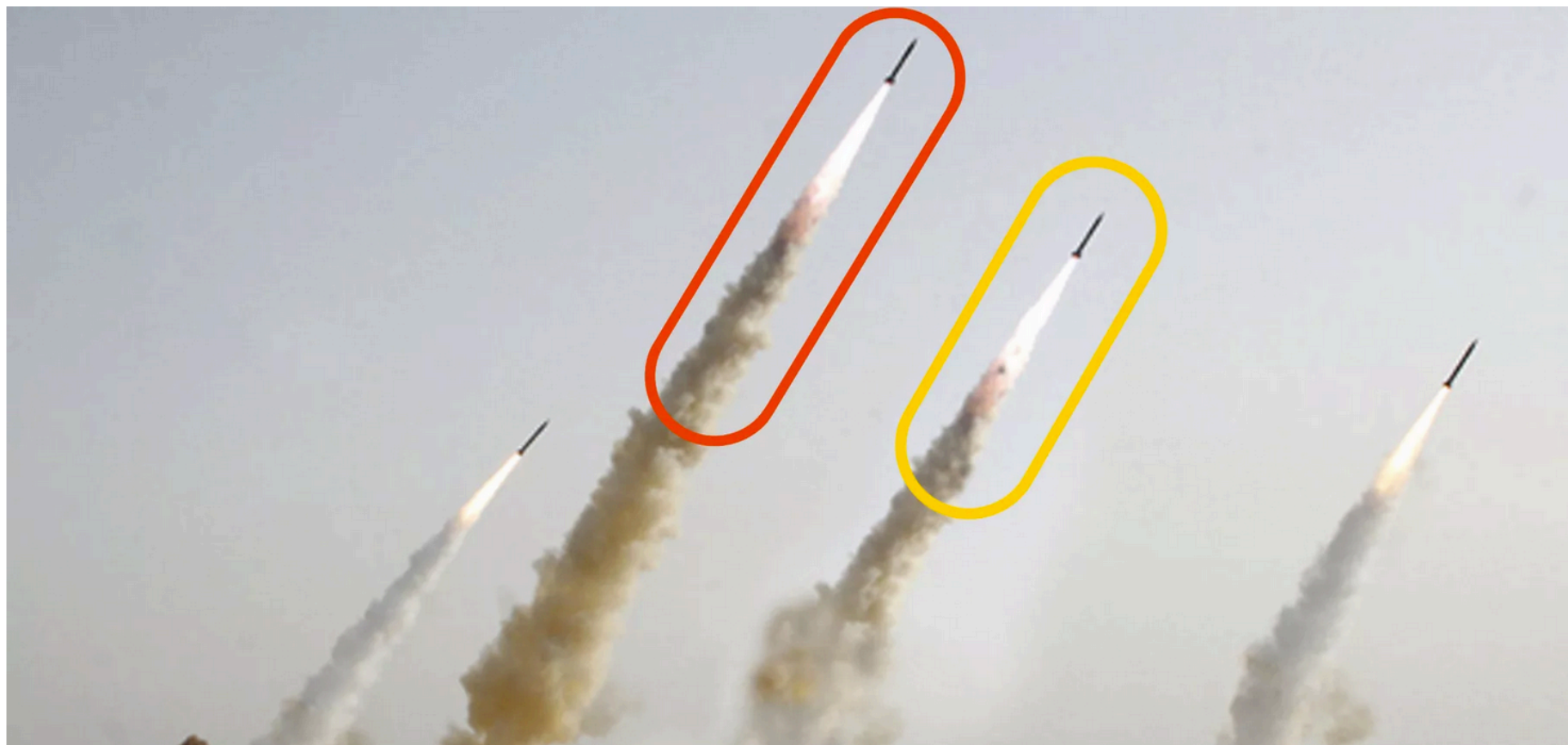
5

New research uses AI to automate traditional digital forensics

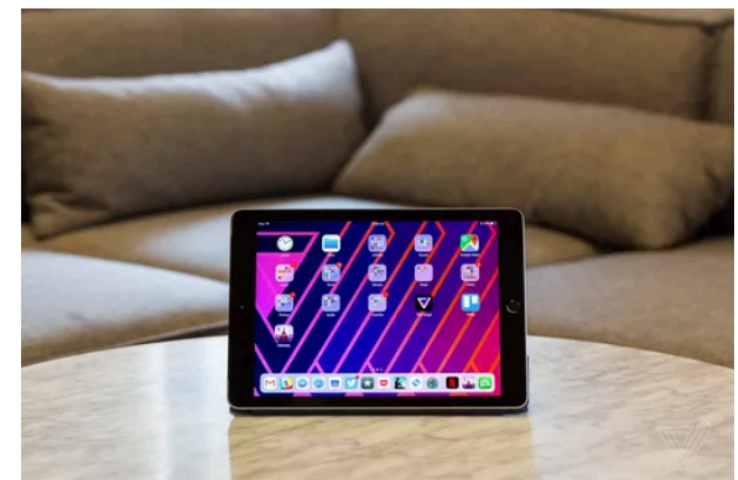
By [James Vincent](#) | Jun 22, 2018, 11:00am EDT



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NEW FEATURES APRIL 27, 2017

Introducing Magnet.AI: Putting Machine Learning to Work for Forensics



Child exploitation investigations often involve luring (also known as grooming): [the process by which a child predator gains their victim's trust](#). Because this happens a lot over chat apps (and chat features within, for example, gaming apps), you might find yourself reviewing thousands or even millions of messages to find your evidence. When you need to find relevant evidence quickly to move an investigation forward, you don't necessarily have the time it takes to evaluate these messages individually.

That's why Magnet Forensics has developed a new way to analyze and classify content using machine learning: Magnet.AI.

Questions?

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