

Artificial Intelligence

Assessing the Promise

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Who is this guy? He's not one of us ...

- Data Protection Officer

- Cyber Security
- Data Protection
- Regulatory Compliance

- Freelance Journalist

How-To Geek

opensource.com

 ITEnterpriser

cloud
savvy 



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What We'll Cover

- What is **Artificial Intelligence**?
 - What are the different types?
 - How does it work?
- What are the **likely benefits** for civil enforcement?
- How do you perform **due diligence** on an AI system?



What is Artificial Intelligence?

- Define **artificial**

- It's not natural, it's **man-made**
- It has the same **properties or function** as something that does occur naturally
- A **stand-in** for the real thing

- Artificial Lung

- Doesn't **look** like a lung
- Doesn't **work** in the same way as a lung
- Produces the **same end result**



Define Intelligence

- Depends who you ask:
 - Philosophers
 - Theologians
 - Psychologists
 - Knowledge Engineers
 - Mental Health Practitioners
 - Lawyers
 - etc.



A Working Definition of Artificial Intelligence

“If a computer system can perform some task that would ordinarily require **human intelligence**, then that system has **artificial intelligence**.”



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Reactive Machines

- **Rules-driven**
 - Expert Systems
 - Knowledge-base Systems
- Medical Diagnosis Systems
- Mineral Mining and Drilling
- Deep Blue Chess Computer
 - Beat Garry Kasparov (1997)



Limited Memory Machines

- Self-driving cars
- Voice Assistants
 - Google Nest
 - Amazon Echo
- Sophisticated chatbots
- They're developed with **Machine Learning**

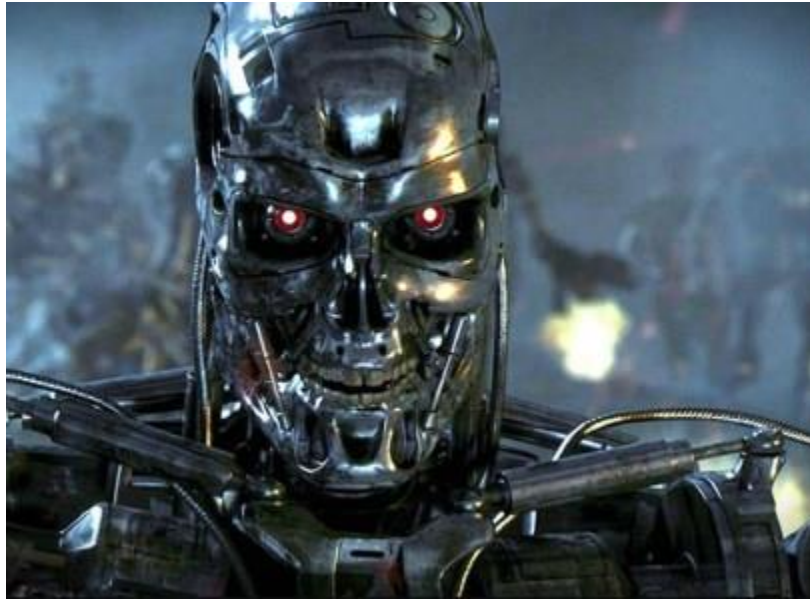


Theory of Mind and Self-Awareness

- **Understand** that other **intelligent entities exist**
- Take what **they may think** about something **into account**
- Understand the concept of **thinking**
 - By itself and by others
- Self-Awareness
 - Conscious, Sentient, Self-aware
 - Emotions, Objectives, Desires, Curiosity, Creativity ...
 - **Artificial Mind**



Hollywood Doesn't Think It'll End Well



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Your Brain = Protein + Neurons



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Machine Learning

- **Artificial Neural Networks**
 - Mimic the **neurons and synapses** in your brain
- Provide them with **huge bodies of data** that they can reference
 - Knowledge, expertise, skills
 - It's as if they're born with **years of experience**
- Give them **feedback** on their performance
 - If they were wrong, what the correct answer was
- Continue to **learn and get better** as they do their job



Examples of Machine Learning Applications

- Natural Language Understanding
 - You can **speak to it**
 - **Read** emails, text messages, chat sessions
- Handwriting Recognition
 - **Read** and interpret **handwriting and signatures**
- Voice Generation
 - Listen to a voice recording then **speak in that voice**
 - Speech patterns, rhythm, cadence, intonation



Nuance is a Problem!

- *I* didn't say we should kill him
- I ***didn't*** say we should kill him
- I didn't ***say*** we should kill him
- I didn't say ***we*** should kill him
- I didn't say we ***should*** kill him
- I didn't say we should ***kill*** him
- I didn't say we should kill ***him***



We (almost) have the technology ...

- **Read** typed or handwritten letters, text messages, emails
- Identify the **account and the case**
- **Identify** where in the process the case has reached
- Understand the **content of the communication**
- Generate a **response**
 - **Send** the appropriate **standard or pro-forma** letter / email / text message
 - **Compose** and send a **free-format** response
 - **Ring them** and **discuss** the issue, and provide a transcript/recording of the conversation



We (almost) have the technology ...

- Machine Learning and Limited Memory Systems are great at **pattern analysis and identification**
- Spotting **patterns in data**
- If the data refers to people, it can detect **patterns of behaviour**
- **Flag up** issues before they arise/turn into a full-on crisis
- Indicators of **imminent defaulting**
 - **Pre-emptively** offer guidance, planning, budgeting, etc.
 - **Prevent** the issue from arising
 - **Win hearts and minds** through pro-active assistance



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Handle Other Lines of Communication

- **Next-generation** chatbots
- **Very lifelike**
 - Like dealing with a person
- Providing **knowledgeable, intelligent, informed** answers
 - Experience, skill, expertise of human operators
 - “Know what they’re talking about”
 - The ability to make judgements and decisions
- Know when to **hand it off to a human**



Due Diligence

- **Ask about the data set** used in the machine learning phase
 - What was it trained with? Make sure it was real data
 - Where did the data come from? **That probably matters!**
- Make sure it hasn't stopped learning
 - Make sure the system will learn as it is being used
 - Don't want the learning phase to be **capped or sealed off**
- How can you **migrate** your existing data
 - How does this get **assimilated by the AI?**



Due Diligence

- Speak to **current users**
 - Ask for **reference sites**
 - What real-world, measurable impact has it had
 - Pro's and Con's
- Remember **Data Privacy**
 - If it sends **one** communication to the **wrong person** you will have probably **breached GDPR**
- Don't be the guinea pigs
 - Let others go through the **new technology pain**
 - Buy **Version 2**



QUESTIONS?

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