# Artificial intelligence

# 1. [Machine learning](https://www.google.com/search?rlz=1C1GCEB_enIN1060IN1060&sca_esv=9d65c0a684302e9e&cs=0&q=machine+learning&stick=H4sIAAAAAAAAAIVST2_TMBSnyKAuHVrnwcRAgAeapp2aZnTVbhS0wyTEpGkXDqhynZfEUmJnttMl-wogJPgICHHmW_AduHPxBYljTzhNVeAwcXzv-f3e74_b_cctf9Z6OFKGR5xxmhIuDKQpj0EwIEbmnOnZ9fb46NXZ8dnr8VfUsqjjrfSynt9PqmRskee162oQpdGy6JeXpUWb-PbomNAw1P-gWoRx1w24IAnQ1CSMKtdc9bx6Nch9M3BIHbzi3oBJHAGL7uG7zQYtjBQyk4UmutIGMjfcxTtXCWj2Fzos2vE6vbjXD_xpEu9HePMUuIikYpCBMOQlUCW4iC3axo9GnFCWcJhCzZ4pCPkkBddjhaKssugpDkZ5nnJGDZeCyIjQK0g42pNCcwHaUXiCt58r6lqaZ0Xa7BpgieDnxfwUodyiNXzrRaGNzECRxp6txtkgKMduVk1AaXBUuKn-RBAmFxat47WTHBy-LJwwQomDu4M3ToHJzMkMHeLSuUWS8WBYiiXM8HDoL4uDy8GhRRt4vU5ShMQZ4ThP52cf4PuLrpaRuXA0CYjY6QQ1d3EP7_7lkK4takLUOa2zKfNUqvns041uVrstgKSLEL7f3Lr29se7_c9Hewc_n3XfnPir0w_fZuTLr_fDj-3__NjfOh0eWtgCAAA&sa=X&ved=2ahUKEwjV2fCp-4CKAxXYSmwGHX_wCDMQ7fAIegUIABCwAg)

Machine learning is a field of study in artificial intelligence concerned with the development and study of statistical algorithms that can learn from data and generalize to unseen data, and thus perform tasks without explicit instructions

1. **unsupervised learning**

Unsuper vised learning in artificial intelligence is a type of machine learning that learns from data without human supervision

# [Deep learning](https://www.google.com/search?rlz=1C1GCEB_enIN1060IN1060&sca_esv=9d65c0a684302e9e&cs=0&q=deep+learning&stick=H4sIAAAAAAAAAH2SvW4UMRSFWWTCMuT3QkAhQrIibYl2lxVaKIefSAjYYtkgIYrIeO7MOBnbg-0ZknQ0CAkqCkRNTcEj8BBUdBQ0fgFQKmYmYohAovM5Pvfzvba7w43O6LBzaaZzwS0VikrGU6GQZsiMEio5PNndvjOZ3Z093v5EOp5chNUtZYscTSksRm3Ok15wtp_0h1cHZZqMYrgwRaFibThKVI7eb3NB0O3L_uBanMWezAdBLdJhrK6nnizBwm3kwgqtqDOIbXp8YzxoxdCWz_6IvYO9pnDKVKQl3dQGravIEEwxqdY1zJPV4HSd3slLCMIs0Ua4VFpPzhz5cvfAkzkgtyYT26KfZmXV73mAe1ckMmUpzwrr0DRjXIb1B3_dFWXHwMuw-LDIc20cfYTcaePJOVgJlZYs26cRuspsOtsAGuZ5JjirtaU6_ucRPFmE-bBwGhXXERrbjFcbkh1BAJZvsn20gimq0D3XZteTFViaYGFY9tuq6tZhLTROxIKLxj--_eHUQoSYt8d-nVs78fr7m9G4h-9fQe_zu-DFl48_vm09-bn58m33P5_mF-T383RXAgAA&sa=X&ved=2ahUKEwj_t8X5-4CKAxV-VWwGHfQ5JiMQ7fAIegUIABC_Aw)

Deep learning is a type of machine learning that uses artificial neural networks to learn from data.

# Reinforcement Learning

Reinforcement Learning (RL) is a branch of machine learning focused on making decisions to maximize cumulative rewards in a given situation. Unlike supervised learning, which relies on a training dataset with predefined answers, RL involves learning through experience. In RL, an agent learns to achieve a goal in an uncertain, potentially complex environment by performing actions and receiving feedback through rewards or penalties.

# 2. robotics

  is the [**interdisciplinary**](https://en.wikipedia.org/wiki/Interdisciplinary) study and practice of the design, construction, operation, and use of [**robots**](https://en.wikipedia.org/wiki/Robot).

# [Autonomous](https://www.google.com/search?rlz=1C1GCEB_enIN1060IN1060&sca_esv=b76c2b5e5c69e07b&cs=0&q=autonomous&stick=H4sIAAAAAAAAAHVSPUtjQRQ1MmryXL9GBK2cFRH8QoMguFZBBC0UNWm0kXHeJBmcNzfMR4wp9g9otdXa-gv8Df4HG0EbsXmFjbBFqp33JFERYWC4c88995x7J5ufyiy3MuMHcAJWMEM0N5xqViUWaj5udWePN3dL26XD4xuUidEPHBScBQUROBOjXNC3FC0tR6fNGI3h0Q1QxmrHrABFdELpMf04V2DWUQvapKhCRQvmpHWayg5qAc8VtBVlwQSV8pwIZbmUosKVJRFtcmJA1rl-w8doHa9tQFRzlia9PM87nnEfvOG8gV-EisUanHHNw06zIMgmsvONZiNGKzi_GcE3NFUXUbWY1qU5TVNzMRrGg1tJDkTY1jSDp7eVgnoqySTV7Ms8vKK0doeHgn2wP49n96itkj1JlWrbJGXQniYEf9XAiIRGqEqMfuLJzsKoP4rw0LH2KCyAjBHGw0Wu68L7eO88hAeKULaftRTPqI4-PI3goVJiU_qhc2V8x-uegHa2ft870XXxfLlyd_V8w_Zbvx9un17Y69Fq3-Pff3-y3_6k_4CjL9FqAgAA&sa=X&ved=2ahUKEwiXzcyUgYGKAxUYRmcHHdV3FHsQ7fAIegQIABB1)

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# [Artificial intelligence](https://www.google.com/search?rlz=1C1GCEB_enIN1060IN1060&sca_esv=b76c2b5e5c69e07b&cs=0&q=artificial+intelligence&stick=H4sIAAAAAAAAAHVSPWtbMRSNg5LYbvOlUNpOUUMIJI1xjaHQdjLGEA8Jbu0lWYyiJ9uierpGH7bjoX-gnTq1a3-Bf0P_Q5dCuhQvb8gS6OCpei_YiQkBgbi65557zr1KF3ZShUnq2Qc4ByuYIZobTjXrEAtdH08W083KSaPaOG2OUCpCj3G25CwoCMGZCGWyK_kw_yr8OIzQE7xVBmWsdswKUETHlB7zCGdKzDpqQZsEVWprwZy0TlM5Qx3ig5K2oiWYoFJeEKEsl1K0ubIkpENODMge1zf4CL3Db8oQdp2lcS_Pc4tn3Ac3OG_gLaEi14U-1zyYNctm07HswmA4iFARFyohPEDTcSFVuaQuyWmamIvQBl47inMggqmmPbxbVQp6iSQTV7N78_CKktpjHgh2x_5LvF-jtkNqkio1tUlaoD1NAP7qghExjVDtCL3A27OFUX8U4YFj01FYABkhjDfqXPeE93HbeR2v1qFl57XU-1SHd5428Xojtin90LkyvuOPpad0tpy5Gf1efr7wefyl-Ov7eMTeTz5d_vx7xa7PXq_8-fbva_rBb_UfxfD1VXcCAAA&sa=X&ved=2ahUKEwiXzcyUgYGKAxUYRmcHHdV3FHsQ7fAIegUIABCIAQ)

Artificial intelligence (AI) is technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy

# A robot is made up of the very same components. A basic typical robot has a movable physical structure, a motor of some sort, a sensor system, a power supply and a computer "brain" that controls all of these elements.

# 3. Stakeholders in AI ethics

Developing ethical principles for responsible AI use and development requires industry actors to work together. Stakeholders must examine how social, economic, and political issues intersect with AI, and determine how machines and humans can coexist harmoniously.

Each of these actors play an important role in ensuring less bias and risk for AI technologies.

* **Academics:**Researchers and professors are responsible for developing theory-based statistics, research, and ideas that can support governments, corporations, and non-profit organizations.
* **Government:**Agencies and committees within a government can help facilitate AI ethics in a nation. A good example of this is the [Preparing for the Future of Artificial Intelligence](https://obamawhitehouse.archives.gov/sites/default/files/whitehouse_files/microsites/ostp/NSTC/preparing_for_the_future_of_ai.pdf) report that was developed by the National Science and Technology Council (NSTC) in 2016, which outlines AI and its relationship to public outreach, regulation, governance, economy, and security.
* **Intergovernmental entities:**Entities like the United Nations and the World Bank are responsible for raising awareness and drafting agreements for AI ethics globally. For example, UNESCO’s 193 member states adopted the first ever global agreement on the [Ethics of AI](https://unesdoc.unesco.org/ark:/48223/pf0000381137) in November 2021 to promote human rights and dignity.

# 4. Key Takeaways

1. Open source intelligence is derived from data and information that is available to the general public. It’s not limited to what can be found using Google, although the so-called “surface web” is an important component.
2. As valuable as open source intelligence can be, information overload is a real concern. Most of the tools and techniques used to conduct open source intelligence initiatives are designed to help security professionals (or threat actors) focus their efforts on specific areas of interest.
3. There is a dark side to open sourceintelligence: anything that can be found by security professionals can also be found (and used) by threat actors.
4. Having a clear strategy and framework in place for open source intelligence gathering is essential — simply looking for anything that could be interesting or useful will inevitably lead to burnout.
5. Using OSINT tools todiscover and protect sensitive data from potential attackers is crucial to reduce the risk of cybersecurity threats.

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