**VIGOS**

COMPUTER SCIENCE :

Artificial Intelligence : **Artificial intelligence** (**AI**) is [intelligence](https://en.wikipedia.org/wiki/Intelligence) demonstrated by [machines](https://en.wikipedia.org/wiki/Machine), unlike the **natural intelligence** [displayed by humans](https://en.wikipedia.org/wiki/Human_intelligence) and [animals](https://en.wikipedia.org/wiki/Animal_cognition), which involves consciousness and emotionality. Colloquially, the term "artificial intelligence" is often used to describe machines (or computers) that mimic "cognitive" functions that humans associate with the [human mind](https://en.wikipedia.org/wiki/Human_mind), such as "learning" and "problem solving" . The traditional problems (or goals) of AI research include [reasoning](https://en.wikipedia.org/wiki/Automated_reasoning), [knowledge,representation](https://en.wikipedia.org/wiki/Knowledge_representation), [planning](https://en.wikipedia.org/wiki/Automated_planning_and_scheduling), [learning](https://en.wikipedia.org/wiki/Machine_learning), [natural,language,processing](https://en.wikipedia.org/wiki/Natural_language_processing), [perception](https://en.wikipedia.org/wiki/Machine_perception) and the ability to move and manipulate objects. The AI field draws upon [computer science](https://en.wikipedia.org/wiki/Computer_science), [information engineering](https://en.wikipedia.org/wiki/Information_engineering_(field)), [mathematics](https://en.wikipedia.org/wiki/Mathematics), [psychology](https://en.wikipedia.org/wiki/Psychology), [linguistics](https://en.wikipedia.org/wiki/Linguistics), [philosophy](https://en.wikipedia.org/wiki/Philosophy), and many other fields. Physicist [Stephen Hawking](https://en.wikipedia.org/wiki/Stephen_Hawking), [Microsoft](https://en.wikipedia.org/wiki/Microsoft) founder [Bill Gates](https://en.wikipedia.org/wiki/Bill_Gates), history professor [Yuval Noah Harari](https://en.wikipedia.org/wiki/Yuval_Noah_Harari), and [SpaceX](https://en.wikipedia.org/wiki/SpaceX) founder [Elon Musk](https://en.wikipedia.org/wiki/Elon_Musk) have expressed concerns about the possibility that AI could evolve to the point that humans could not control it, with Hawking theorizing that this could "[spell the end of the human race](https://en.wikipedia.org/wiki/Global_catastrophic_risk)"

Machine Learning : **Machine learning** (**ML**) is the study of computer [algorithms](https://en.wikipedia.org/wiki/Algorithm) that improve automatically through experience. It is seen as a part of [artificial intelligence](https://en.wikipedia.org/wiki/Artificial_intelligence).  Machine learning algorithms are used in a wide variety of applications, such as [email filtering](https://en.wikipedia.org/wiki/Email_filtering) and [computer vision](https://en.wikipedia.org/wiki/Computer_vision), where it is difficult or unfeasible to develop conventional algorithms to perform the needed tasks. [Tom M. Mitchell](https://en.wikipedia.org/wiki/Tom_M._Mitchell) provided a widely quoted, more formal definition of the algorithms studied in the machine learning field: "A computer program is said to learn from experience *E* with respect to some class of tasks *T* and performance measure *P* if its performance at tasks in *T*, as measured by *P*, improves with experience *E. Finally today we are all having a question!!?* "Can machines think?" is replaced with the question "Can machines do what we can do?". Conversely, machine learning techniques have been used to improve the performance of genetic and [evolutionary algorithms](https://en.wikipedia.org/wiki/Evolutionary_algorithm).

Data Science : **Data science** is an [inter-disciplinary](https://en.wikipedia.org/wiki/Inter-disciplinary) field that uses scientific methods, processes, algorithms and systems to extract [knowledge](https://en.wikipedia.org/wiki/Knowledge) and insights from many structural and [unstructured data](https://en.wikipedia.org/wiki/Unstructured_data). Data science is related to [data mining](https://en.wikipedia.org/wiki/Data_mining), [machine learning](https://en.wikipedia.org/wiki/Machine_learning) and [big data](https://en.wikipedia.org/wiki/Big_data). [Turing award](https://en.wikipedia.org/wiki/Turing_award) winner [Jim Gray](https://en.wikipedia.org/wiki/Jim_Gray_(computer_scientist)) imagined data science as a "fourth paradigm" of science ([empirical](https://en.wikipedia.org/wiki/Empirical_research), [theoretical](https://en.wikipedia.org/wiki/Basic_research), [computational](https://en.wikipedia.org/wiki/Computational_science) and now data-driven) and asserted that "everything about science is changing because of the impact of [information technology](https://en.wikipedia.org/wiki/Information_technology)" and the [data deluge](https://en.wikipedia.org/wiki/Information_explosion). linking data science to [human-computer interaction](https://en.wikipedia.org/wiki/Human%E2%80%93computer_interaction): users should be able to intuitively control and explore data. everything about science is changing because of the impact of [information technology](https://en.wikipedia.org/wiki/Information_technology)" and the [data deluge](https://en.wikipedia.org/wiki/Information_explosion).

DevOps : **DevOps** is a set of practices that combines [software development](https://en.wikipedia.org/wiki/Software_development) (*Dev*) and [IT operations](https://en.wikipedia.org/wiki/IT_operations) (*Ops*). It aims to shorten the [systems development life cycle](https://en.wikipedia.org/wiki/Systems_development_life_cycle) and provide [continuous delivery](https://en.wikipedia.org/wiki/Continuous_delivery) with high [software quality](https://en.wikipedia.org/wiki/Software_quality). DevOps is complementary with [Agile software development](https://en.wikipedia.org/wiki/Agile_software_development); several DevOps aspects came from the Agile methodology. Lisa Crispin and Janet Gregory wrote the book More Agile Testing, containing a chapter on testing and DevOps. Today, DevOps focuses on the deployment of developed software, whether it is developed via Agile or other methodologies. DevOps integration targets [product delivery](https://en.wikipedia.org/wiki/Software_delivery), [continuous testing](https://en.wikipedia.org/wiki/Continuous_testing), [quality testing](https://en.wikipedia.org/wiki/Software_testing#Software_quality_assurance), feature development, and [maintenance releases](https://en.wikipedia.org/wiki/Maintenance_release) in order to improve reliability and security and provide faster [development](https://en.wikipedia.org/wiki/Development_cycle) and [deployment](https://en.wikipedia.org/wiki/Software_deployment) cycles. Many of the ideas (and people) involved in DevOps came from the [enterprise systems management](https://en.wikipedia.org/wiki/Enterprise_systems_management) and [agile software development](https://en.wikipedia.org/wiki/Agile_software_development) movements.

Cloud Computing : **Cloud computing**  is the on-demand availability of [computer](https://en.wikipedia.org/wiki/Computer) [system resources](https://en.wikipedia.org/wiki/System_resource), especially data storage ([cloud storage](https://en.wikipedia.org/wiki/Cloud_storage)) and [computing power](https://en.wikipedia.org/wiki/Computing_power), without direct active management by the user. The term is generally used to describe [data centers](https://en.wikipedia.org/wiki/Data_center) available to many users over the [Internet](https://en.wikipedia.org/wiki/Internet). Large clouds, predominant today, often have functions [distributed](https://en.wikipedia.org/wiki/Distributed_computing) over multiple locations from central [servers](https://en.wikipedia.org/wiki/Server_(computing)). If the connection to the user is relatively close, it may be designated an [edge server](https://en.wikipedia.org/wiki/Edge_server). Cloud providers typically use a "pay-as-you-go" model, which can lead to unexpected [operating expenses](https://en.wikipedia.org/wiki/Operating_expense) if [administrators](https://en.wikipedia.org/wiki/Network_administrator) are not familiarized with cloud-pricing models. Agility for organizations may be improved, as cloud computing may increase users' flexibility with re-provisioning, adding, or expanding technological infrastructure resources.

Virtual Reality : **Virtual reality** (**VR**) is a [simulated](https://en.wikipedia.org/wiki/Simulation) experience that can be similar to or completely different from the real world. [Applications of virtual reality](https://en.wikipedia.org/wiki/Applications_of_virtual_reality) include entertainment (e.g. [video games](https://en.wikipedia.org/wiki/Video_game)) and education (e.g. medical or military training). Other distinct types of VR-style technology include [augmented reality](https://en.wikipedia.org/wiki/Augmented_reality) and [mixed reality](https://en.wikipedia.org/wiki/Mixed_reality), sometimes referred to as [extended reality](https://en.wikipedia.org/wiki/Extended_reality) or XR. Currently, standard virtual reality systems use either [virtual reality headsets](https://en.wikipedia.org/wiki/Virtual_reality_headset) or multi-projected environments to generate realistic images, sounds and other sensations that simulate a user's physical presence in a virtual environment. The term "[artificial reality](https://en.wikipedia.org/wiki/Artificial_reality)", coined by [Myron Krueger](https://en.wikipedia.org/wiki/Myron_W._Krueger), has been in use since the 1970s. [Augmented reality](https://en.wikipedia.org/wiki/Augmented_reality) (AR) is a type of virtual reality technology that blends what the user sees in their real surroundings with digital content generated by computer software.

ELECTRONICS AND COMMUNICATION

Internet Of Things : The **Internet of things** (**IoT**) describes the network of physical objects—“things”—that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the [Internet](https://en.wikipedia.org/wiki/Internet). Things have evolved due to the convergence of multiple technologies, real-time [analytics](https://en.wikipedia.org/wiki/Analytics), [machine learning](https://en.wikipedia.org/wiki/Machine_learning), [commodity](https://en.wikipedia.org/wiki/Commodity) [sensors](https://en.wikipedia.org/wiki/Sensors), and [embedded systems](https://en.wikipedia.org/wiki/Embedded_system). Traditional fields of [embedded systems](https://en.wikipedia.org/wiki/Embedded_system), [wireless sensor networks](https://en.wikipedia.org/wiki/Wireless_sensor_network), control systems, [automation](https://en.wikipedia.org/wiki/Automation) (including [home](https://en.wikipedia.org/wiki/Home_automation) and [building automation](https://en.wikipedia.org/wiki/Building_automation)), and others all contribute to enabling the Internet of things.  IoT technology is most synonymous with products pertaining to the concept of the "[smart home](https://en.wikipedia.org/wiki/Smart_home_technology)", including devices and [appliances](https://en.wikipedia.org/wiki/Home_appliance) (such as lighting fixtures, [thermostats](https://en.wikipedia.org/wiki/Thermostats), home [security systems](https://en.wikipedia.org/wiki/Security_systems) and cameras, and other home appliances) that support one or more common ecosystems, and can be controlled via devices associated with that ecosystem, such as [smartphones](https://en.wikipedia.org/wiki/Smartphone) and [smart speakers](https://en.wikipedia.org/wiki/Smart_speaker).

VLSI : **VLSI Technology, Inc.**, was a company that designed and manufactured custom and semi-custom [integrated circuits](https://en.wikipedia.org/wiki/Integrated_circuit) (ICs). The company was based in [Silicon Valley](https://en.wikipedia.org/wiki/Silicon_Valley), with headquarters at 1109 McKay Drive in [San Jose](https://en.wikipedia.org/wiki/San_Jose,_California). Along with [LSI Logic](https://en.wikipedia.org/wiki/LSI_Logic), VLSI Technology defined the leading edge of the [application-specific integrated circuit](https://en.wikipedia.org/wiki/Application-specific_integrated_circuit) (ASIC) business, which accelerated the push of powerful [embedded systems](https://en.wikipedia.org/wiki/Embedded_systems) into affordable products. VLSI became an early vendor of standard cell (cell-based technology) to the merchant market in the early 1980s where the other ASIC-focused company, LSI Logic, was a leader in [gate arrays](https://en.wikipedia.org/wiki/Gate_array). Prior to VLSI's cell-based offering, the technology had been primarily available only within large vertically integrated companies with semiconductor units such as [AT&T](https://en.wikipedia.org/wiki/American_Telephone_%26_Telegraph) and [IBM](https://en.wikipedia.org/wiki/IBM).

Robotics :