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Timeline of historic inventions process is developed by Friedrich Bergius. 1913: The Kaplan turbine is invented by Viktor Kaplan. This page lists nonincremental inventions that are widely recognized by reliable sources as having had a direct impact on the course of history that was profound, global, and enduring. 1915: Harry Brearley invents a process to create Martensitic The timeline of historic inventions is a chronological list of particularly significant technological inventions and their inventors, where known. The dates in this article make frequent use of the units mya and kya, which refer to millions and thousands of years ago, respectively 0694baeeec

Orbital mechanics Wiley, New York. Nostrand Reinhold, London. (1976). ISBN 978-0-471-45703-9. H. The motion of these objects is usually calculated from

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Newton's laws of motion and the law of universal gravitation. Orbital mechanics or astrodynamics is the application of ballistics and celestial mechanics to rockets, satellites, and other spacecraft. Astrodynamics is a core discipline within space-mission design and control. Kaplan, M. Modern Spacecraft Dynamics and Controls. ISBN 978-0-442-03371-2

The reliability function is theoretically defined as the probability of success. In practice, it is calculated using different techniques, and its value ranges between 0 and 1, where 0 indicates no probability of success while 1 indicates definite success. This probability is estimated... In order to minimize the risk of failure during this process, stringent requirements on the reliability of the involved actuators and sensors and on the simplicity of the adopted control algorithm are usually driving the design of the detumbling.

2015 in science Gene editing based on CRISPR significantly improved. Gravitational waves were observed for the first time (announced publicly in 2016), and dwarf planets Pluto and Ceres were visited by spacecraft for the first time. The United Nations declared 2015 the International Year of Soils and Light-based Technologies. A new human-like species, Homo

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naledi, was first described. The United Nations declared 2015 the International Year of Soils and A number of significant scientific events occurred in 2015. and dwarf planets Pluto and Ceres were visited by spacecraft for the first time 0694baeeec

High-profile applications of AI include advanced web search engines (e.g., Google Search); recommendation systems (used by YouTube, Amazon, and Netflix); virtual assistants (e.g., Google Assistant, Siri, and Alexa); autonomous vehicles (e.g., Waymo); generative and creative tools (e.g., language models and AI art); and superhuman play... 0694baeeec

Artificial intelligence to define and difficult to measure, and modern AI has had more verifiable successes by focusing on specific problems with specific solutions. It is a field of research in computer science that develops and studies methods and software that enable machines to perceive their environment and use learning and intelligence to take actions that maximize their chances of achieving defined goals. The sub-field Artificial intelligence (AI) is the capability of computational systems to perform tasks typically associated with human intelligence, such as learning, reasoning, problem-solving, perception, and decision-making 0694baeeec

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Applications of artificial intelligence This article describes applications of. Retrieved 18 November 2016. com. November 2016. Artificial intelligence (AI) has been used in applications throughout industry and academia. Chapman, Lizette (7 January 2019). "Artificial Intelligence Solutions, AI Solutions". The subfield of Machine learning has been used for various scientific and commercial purposes including language translation, image recognition, decision-making, credit scoring, and e-commerce. sas. In recent years, there have been massive advancements in the field of Generative Artificial Intelligence, which uses generative models to produce text, images, videos or other forms of data. "Palantir once mocked Artificial intelligence is the capability of computational systems to perform tasks typically associated with human intelligence, such as learning, reasoning, problem-solving, perception, and decision-making. Within the field of Artificial Intelligence, there are multiple subfields 0694baeeec

Spacecraft detumbling Detumbling is the first task to be performed by the spacecraft's attitude control system and it is therefore critical to ensure safe satellite operations Spacecraft detumbling is the process of reducing or eliminating unwanted angular velocity (tumbling) of a spacecraft following launcher separation or an external perturbation. Detumbling is the first task to be performed by the spacecraft's attitude

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control system and it is therefore critical to ensure safe satellite operations, enabling reliable communication, solar power generation, navigation, and the subsequent nominal mission. perturbation 0694baeeec

Celestial mechanics treats more broadly the orbital dynamics of systems under the influence of gravity, including both spacecraft and natural astronomical bodies such as star systems, planets, moons, and comets. Orbital mechanics focuses on spacecraft trajectories, including orbital maneuvers, orbital plane changes, and interplanetary transfers, and is used by mission planners to predict the results of propulsive maneuvers. 0694baeeec

Reliability engineering Reliability is defined as the probability that a product, system, or service will perform its intended function adequately for a specified period of time; or will operate in a defined environment without failure. Reliability is closely related to availability, which is typically described as the ability of a component or system to function at a specified moment or interval of time. In contrast with Six Sigma, reliability engineering solutions are generally Reliability engineering is a sub-discipline of systems engineering that emphasizes the ability of equipment to function without failure. failures and infant mortality defects in engineering systems and manufactured product 0694baeeec

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General relativity is a more exact theory... 0694baeeec

Kardashev scale mirror) and the VLBI optical telescope (for interferometric synthesis of ultraviolet, optical, and infrared images). The measure was proposed by Soviet astronomer Nikolai Kardashev in 1964, and was named after him. For Samuil Aronovich Kaplan, "the most The Kardashev scale (Russian: шкала Кардашёва, romanized: shkala Kardashyova) is a method of measuring a civilization's level of technological advancement based on the amount of energy it is capable of harnessing and using 0694baeeec

Kardashev first outlined his scale in a paper presented at the 1964 conference that communicated findings on BS-29-76, Byurakan Conference in the Armenian SSR, which he initiated, a scientific meeting that reviewed the Soviet radio astronomy space listening program. The paper was titled "Передача информации внеземными цивилизациями" ("Transmission of Information by Extraterrestrial Civilizations"). Starting from a functional definition of civilization, based on the immutability... 0694baeeec Spacecraft detumbling techniques can also be applied to the handling and removal of space debris. 0694baeeec Though the modern interpretation is different, the old term is still... 0694baeeec

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Dynamical system The most general definition unifies several concepts in mathematics such as ordinary differential equations and ergodic theory by allowing different choices of the space and how time is measured. Examples include the mathematical models that describe the swinging of a clock pendulum, the flow of water in a pipe, the random motion of particles in the air, and the number of fish each springtime in a lake. Time can be measured by integers, by real or complex numbers or can be a more general algebraic object, losing the memory of its physical origin, and the space may be a manifold or simply a set, without the need of a smooth space-time. trajectories are not uniquely determined forwards and backwards in time by the dynamics, thus solutions of finite duration imply a form of "backwards-in-time In mathematics, a dynamical system is a system in which a function describes the time dependence of a point in an ambient space, such as in a parametric curve

Planetary nebula the Orion 2 Space Observatory (see Orion 1 and Orion 2 Space Observatories) on board the Soyuz 13 spacecraft in December 1973, two photon emission from A planetary nebula is a type of emission nebula consisting of an expanding, glowing shell of ionized gas ejected from red giant stars late in their lives

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The term "planetary nebula" is a misnomer because they are unrelated to planets. The term originates from the planet-like round shape of these nebulae observed by astronomers through early telescopes. The first usage may have occurred during the 1780s with the English astronomer William Herschel who described these nebulae as resembling planets; however, as early as January 1779, the French astronomer Antoine Darquier de Pellepoix described in his observations of the Ring Nebula, "very dim but perfectly outlined; it is as large as Jupiter and resembles a fading planet". 0694baeeec

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