

Chapter 1 : The Space Race: A Surrogate Superpower War - HISTORY

SpaceX, Elon Musk's privately held aerospace company is reigniting a new kind of excitement for everything space. Where NASA was once king, SpaceX is disrupting the aerospace industry, utilizing re-usable rockets and a vision of colonizing Mars.

This century, technologies are proving they can outperform human left brains – they can execute sequential, reductive, computational work better, faster and more accurately than even those with the highest IQs. Whereas before one would have to pay a lawyer for hours of service to create the same legal document or dispense legal advice. Technology cannot negotiate a settlement or convince a jury of your innocence. Basically, any job that can be reduced to a set of rules may be at risk. Robot Radiologists may soon analyze your x-rays as Artificial Intelligence AI is changing the delivery of healthcare. AI is already helping us to optimize workflow, facilitate quantitative radiology and find genomic markers not seen by radiologists. But there is fear and excitement over the AI application in radiology. Using AI in radiology got its start in CAD, first in mammography and now being applied to other procedures. Clinical radiologists have a wide variety of opinions about how much added value CAD brings to a procedure. Watson demonstrated that machine learning yielded major increases to computer processing power and the application for medicine, but IBM has yet to commercialize the technology. To be clinically relevant, AI must be the result of massive amounts of deep learning. The most common application in clinical medicine currently is in speech recognition and there is much room for improvement in the technology. To apply AI to image evaluation, massive data sets must be available to develop the algorithms. After all, it took Google millions of examples for their deep learning software to recognize the difference between cats and other furry creatures. If you mention AI to a hospital executive their eyes light up with the possibilities especially as the database of patient information continues to grow. There currently are few practical applications in use aligned with workflow and clinical priorities. The shortage of outcome data continues to delay the application of machine learning to the electronic health record EHR. One of the most significant problems facing physicians today is the overload of patient information to sift through. Many physicians compare it to trying to drink from a firehose. As patients begin to upload information into their EHR, the information will increase. Combined with the increasing number of patients to be seen and the data available, medicine only becomes more frustrating. AI could review data and finding anomalies or pertinent data streamline the process. In finding the anomalies such as lung nodules or pneumothorax or a malpositioned feeding tube, AI can improve treatment. Who will be the primary winner to commercially make AI relevant and effective? We will continue to watch closely.

Chapter 2 : The New Race to Space: Eric Knight: www.nxgvision.com: Books

The New Race for Space is a joyride for anyone who loves rocketry, outer space or simply a great read. Fast-paced and full of unexpected twists, this true story shows how a band of talented problem-solvers pursued a lifelong dream--and overcame incredible obstacles and setbacks.

The United States also acquired a large number of complete V2 rockets. Goddard had worked on developing solid-fuel rockets since , and demonstrated a light battlefield rocket to the US Army Signal Corps only five days before the signing of the armistice that ended World War I. He also started developing liquid-fueled rockets in , yet he had not been taken seriously by the public. Nuclear arms race The cold war would become the great engine, the supreme catalyst, that sent rockets and their cargoes far above Earth and worlds away. If Tsiolkovsky , Oberth , Goddard , and others were the fathers of rocketry, the competition between capitalism and communism was its midwife. It involved a continuing state of political conflict, military tension, proxy wars, and economic competition, primarily between the Soviet Union and its satellite states often referred to as the Eastern Bloc and the powers of the Western world , particularly the United States. SAC employed intercontinental strategic bombers, as well as medium-bombers based close to Soviet airspace in western Europe and in Turkey that were capable of delivering nuclear payloads. Having suffered at least 27 million casualties during World War II after being invaded by Nazi Germany in , [27] the Soviet Union was wary of its former ally, the United States, which until late was the sole possessor of atomic weapons. The United States had used these weapons operationally during World War II, and it could use them again against the Soviet Union, laying waste to its cities and military centers. Although some of its components notably boosters still resembled the German G-4, the new rocket incorporated staged design, a completely new control system, and a new fuel. Soviet space program and Space policy of the United States First artificial satellite[edit] In , with both the United States and the Soviet Union building ballistic missiles that could be utilized to launch objects into space, the "starting line" was drawn for the Space Race. Hagerty , president Dwight D. Since his R-7 was substantially more powerful than any of the American boosters, he made sure to take full advantage of this capability by designing Object D as his primary satellite. Korolev was buoyed by the first successful launches of his R-7 rocket in August and September, which paved the way for him to launch his sputnik. But the celebrations were muted at the launch control center until the down-range far east tracking station at Kamchatka received the first distinctive beep Sputnik crisis The Soviet success raised a great deal of concern in the United States. It is Russia, not the United States, who has had the imagination to hitch its wagon to the stars and the skill to reach for the moon and all but grasp it. The satellite appeared in newspapers under the names Flopnik, Stayputnik, Kaputnik, [49] and Dudnik. James Van Allen , a space scientist at the University of Iowa , had theorized. The satellite measured three phenomena: The satellite had no memory for data storage, therefore it had to transmit continuously. On April 2, , President Eisenhower reacted to the Soviet space lead in launching the first satellite by recommending to the US Congress that a civilian agency be established to direct nonmilitary space activities. Johnson , responded by passing the National Aeronautics and Space Act , which Eisenhower signed into law on July 29, Marshall Space Flight Center , with von Braun as its first director. Development of the Saturn rocket family , which when mature gave the US parity with the Soviets in terms of lifting capability, was thus transferred to NASA. Three secret attempts to launch Luna E-1 -class impactor probes failed. The fourth attempt, Luna 1 , launched successfully on January 2, , but missed the Moon. The fifth attempt on June 18 also failed at launch. Although he had the ability to take over manual control of his capsule in an emergency by opening an envelope he had in the cabin that contained a code that could be typed into the computer, it was flown in an automatic mode as a precaution; medical science at that time did not know what would happen to a human in the weightlessness of space. For this reason, the Soviet Union omitted from their FAI submission the fact that Gagarin did not land with his capsule. The radio communication between the launch control room and Gagarin included the following dialogue at the moment of rocket launch: We wish you a good flight. Everything is all right. This program studied several different types of one-man space vehicles, settling on a ballistic re-entry capsule launched on a derivative Atlas missile ,

and selecting a group of nine candidate pilots. NASA selected a new group of astronaut from the Greek for "star sailor" candidates from Navy , Air Force and Marine test pilots, and narrowed this down to a group of seven for the program. Capsule design and astronaut training began immediately, working toward preliminary suborbital flights on the Redstone missile , followed by orbital flights on the Atlas. Each flight series would first start uncrewed, then carry a non-human primate, then finally humans. On May 5, , Alan Shepard became the first American in space, launched in a ballistic trajectory on Mercury-Redstone 3 , in a spacecraft he named Freedom 7. Moon landing These are extraordinary times. And we face an extraordinary challenge. Now it is time to take longer stridesâ€”time for a great new American enterpriseâ€”time for this nation to take a clearly leading role in space achievement, which in many ways may hold the key to our future on Earth. Recognizing the head start obtained by the Soviets with their large rocket engines, which gives them many months of lead-time, and recognizing the likelihood that they will exploit this lead for some time to come in still more impressive successes, we nevertheless are required to make new efforts on our own. I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to the Earth. No single space project in this period will be more impressive to mankind, or more important for the long-range exploration of space, and none will be so difficult or expensive to accomplish. Jerome Wiesner of MIT, who served as a science advisor to presidents Eisenhower and Kennedy, and himself an opponent of crewed space exploration, remarked, "If Kennedy could have opted out of a big space program without hurting the country in his judgment, he would have. Webb submitted a budget request to fund a Moon landing before , Kennedy rejected it because it was simply too expensive. Additionally, the Bay of Pigs invasion , planned before his term began but executed during it, was an embarrassment to his administration due to the colossal failure of the American forces. As later disclosed, the Soviet Union secretly pursued a crewed lunar program until Almost a year after the Soviet Union put a human into orbit, astronaut John Glenn became the first American to orbit the Earth, on February 20, Vostok[edit] Replica of the Vostok capsule Gherman Titov became the first Soviet cosmonaut to exercise manual control of his Vostok 2 craft on August 6, There were no maneuvering rockets on the Vostok to permit space rendezvous , required to keep two spacecraft a controlled distance apart. This time they launched the first woman also the first civilian , Valentina Tereshkova , into space on Vostok 6. The Soviets kept the details and true appearance of the Vostok capsule secret until the April Moscow Economic Exhibition, where it was first displayed without its aerodynamic nose cone concealing the spherical capsule. A tail section with eight fins was also added, in an apparent attempt to confuse western observers. This spurious tail section also appeared on official commemorative stamps and a documentary. Kennedy thus changed his mind regarding the desirability of the space race, preferring instead to ease tensions with the Soviet Union by cooperating on projects such as a joint lunar landing. Gemini and Voskhod[edit] Focused by the commitment to a Moon landing, in January the US announced Project Gemini , a two-man spacecraft that would support the later three-man Apollo by developing the key spaceflight technologies of space rendezvous and docking of two craft, flight durations of sufficient length to simulate going to the Moon and back, and extra-vehicular activity to accomplish useful work outside the spacecraft. Meanwhile, Korolev had planned further, long-term missions for the Vostok spacecraft, and had four Vostoks in various stages of fabrication in late at his OKB-1 facilities. These plans included major advancements in spacecraft capabilities, including a two-person spacecraft, the ability to change orbits, the capacity to perform an extravehicular activity EVA , and the goal of docking with another spacecraft. Voskhod programme The Voskhod 1 and 2 space capsules The greater advances of the Soviet space program at the time allowed their space program to achieve other significant firsts, including the first EVA "spacewalk" and the first mission performed by a crew in shirt-sleeves. Gemini took a year longer than planned to accomplish its first flight, allowing the Soviets to achieve another first, launching Voskhod 1 on October 12, , the first spacecraft with a three-cosmonaut crew. Flying without spacesuits exposed the cosmonauts to significant risk in the event of potentially fatal cabin depressurization.

Chapter 3 : Space Race - Wikipedia

*New Race For Space [James E. Oberg] on www.nxgvision.com *FREE* shipping on qualifying offers. Surveys the U.S. and Russian space programs, examines the problems of space travel, and discusses possible cooperative projects for the future.*

By David Hambling 1 June The near future: It was launched from Mongolia, not Houston. And the tourists are Chinese. In 1957, Russia amazed the world by launching Sputnik, the first satellite. Satellites are vital in communications, weather monitoring, navigation and other areas. But 60 years after Sputnik high-altitude balloons are challenging them. Balloons provide a vantage point at 30 kilometres. They cost a fraction of the price and, unlike satellites, can easily return to Earth for upgrade or repairs. Nasa pioneered the first stratospheric balloons in the 1930s; today the agency uses them for atmospheric research, Earth observation and exploring cosmic rays. Their weakness is that they can only drift with the wind; the big breakthrough in recent years has been learning how to steer them. In principle, and given the necessary weather information, a balloon can go in any direction desired simply by moving to the right altitude and riding the wind. View image of Sputnik 3 Credit: Getty Images Project Loon, part of Google parent Alphabet, is one of the first to exploit these countervailing winds with high-altitude balloons to provide communications in remote or disaster-hit areas. The original plan was a stream of balloons following the prevailing wind, but researchers found the balloons could stay in place by using countervailing winds at different heights. Sophisticated machine-learning algorithms change height to catch the right wind. Project Loon gave internet access to 100,000 people in Puerto Rico after hurricane Maria destroyed infrastructure in 2017. This proved that the concept works, even though it is still at the experimental stage. We think this has the potential to be a game-changer for us – Admiral Kurt Tidd, US Navy World View, based in Tucson, plan to use their balloons, known as Stratollites, not just as communications relays, but also as surveillance platforms. BBC Future visited their facility back in 2015. Three years ago World View looked like a dream, but after a series of increasingly ambitious test flights, the company has government contracts and commercial customers. The defence community sees Stratollites as the new eyes in the sky. View image of Project Loon balloon Credit: Current Stratollites carry a 50kg lb payload and thanks to solar cells they can operate indefinitely, with enough power to drive radar or powerful communications. Bigger balloons capable of carrying larger payloads are in the pipeline. Longer-term plans include near-space tourism and delivering cargo. When its mission is over, a Stratollite goes to a given point and parachutes to the ground. The same technique could be used to deliver emergency supplies or other cargo to remote locations anywhere in the world. One of the holy grails around the world is whether you can lower the cost of launching a small CubeSat into orbit – Jeffrey Manber, Nanoracks There is growing competition, and it comes from China. KuangChi Science KC, founded in Shenzhen in 2012, specialises in airships and communications technology. The company is developing its Traveller balloon and its own version of wind-riding stratospheric navigation. He says it will cost between one-tenth and one hundredth of a comparable satellite system. Traveller will also carry a capsule with six passengers high into the stratosphere. Last October, KuangChi launched and safely retrieved a balloon carrying a turtle to an altitude of 21 kilometres. View image of WorldView balloon at airfield Credit: This would be useful for the growing market for tiny CubeSats. Balloons might also launch vehicles downward. In a team from the Chinese Academy of Sciences led by Wang Kang released two small drones from a stratospheric balloon, turning it into a flying airbase. This setup could carry out search and rescue missions, with sensors on the balloon identifying likely locations and dropping drones for a close-up view. View image of Cubesat in orbit Credit: Nobody controls this domain – yet – and stratospheric balloons offer an inexpensive means for military surveillance and other applications. The could lead to a slew of military contracts. After the Russian Sputnik showed the world what satellites could do, the US outmatched them in the space race. More and more stratospheric balloons for near-space tourism, communication and surveillance are likely to appear in the near future. The near-space race is on and while America is currently leading, China is catching up – quickly.

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Chapter 4 : AI is in the New Race for Space. | AHEC Blog

A New Urgency ; Space Race Heats Up These tensions would continue throughout the space race, exacerbated by such events as the construction of the Berlin Wall in

Chapter 5 : Vice News Takes Giant Leap With "The New Space Race"™ Show On Twitter | Deadline

Falcon Heavy, world's most powerful rocket, successfully launches - video The new space race is something stranger than the cold war contest between the US and the Soviet Union.

Chapter 6 : The new space race: how billionaires launched the next era of exploration | Science | The Guardian

The rapidly falling cost of space launches is driving renewed excitement on the final frontier, and VC dollars are joining in, hoping to hitch a ride into the stratosphere and beyond.

Chapter 7 : The new race for space | The Times

It's human nature to think of change as something that takes place slowly over long periods of time, but sometimes there are massive and sudden changes. In t.

Chapter 8 : The Space Race - HISTORY

AI is in the New Race for Space. "Last century machines proved they could replace human muscle. This century, technologies are proving they can outperform human left brains - they can execute sequential, reductive, computational work better, faster and more accurately than even those with the highest IQs." (Chaffee, 44).

Chapter 9 : BBC - Future - The new lighter-than-air race for space

Commercial companies like SpaceX are starting to gain traction in the space industry. There are currently more than a dozen private rockets capsules and spaceplanes under development, with more on.