1968 Birth of the computer & peripheral industries after IBM antitrust lawsuit. Third-generation Italian-American Roy Jacuzzi invents the Jacuzzi. Tupolev TU-144 unveiled as the first supersonic jetliner, built in the Soviet Union. *2001: A Space Odyssey* is the first major Hollywood film to link the camera with the technical wizardry of computers for special effects. Big Mac Super Sandwich debuts.

1969 Neil Armstrong, Apollo 11 astronaut, becomes the first man to walk on the moon. Gore-Tex fabric debuts. The Department of Defense establishes Advance Projects Agency computer Network at: UCLA, Stanford Research Institute, UC Santa Barbara, University of Utah. Chemical Bank, New York, is the first to install an ATM. The Boeing 747 debuts. Science identifies the beginning and end of a single gene, a subsection of a chromosome.

1970 Glass & plastic fiber optics began to be used to carry laser signals; flashes of lasers travel considerably faster than electrons down a wire. EPA, the Clean Air Act and Earth Day instituted. The first catalytic converters begin going on new vehicles, 18 years after Cal Tech scientists showed auto emissions contributed to smog. IBM creates computer floppy disk.

1971 The first microprocessor computer chip, a versatile "computer on a chip" is designed by Marcian "Ted" E. Hoff, Jr, introduced by Intel. Ray Tomlinson invents e-mail program. First passenger flight of a su-

personic Concorde jetliner, max speed: 1,354 mph; USA to Europe in less than 3hrs; passengers can see the curvature of the Earth from 12 miles up. Godfrey Hounsfield, a music engineer in England, demonstrates the first working CAT using crude computerized tomography; this CAT scanning x-ray detected a tumor and saved the life of a patient. Casio Phone-Mate Model 400 tel. answering machine hits the market.

1972 The first luggage with wheels rolls into history, designed by Bernard Sadow. Automatic coffeemaker "Mr. Coffee" debuts. First Daisy Wheel printer, by Diablo Systems.

1973 Skylab, first space lab, launched. Micral, first commercial nonkit microcomputer system, developed by Truong Trong Thi from France. Herbert Boyer and Stanley Cohen splice together DNA to create new genes that alter nature.

1974 Internet is coined.

1975 Microsoft is created by Bill Gates. The first liquid-crystal displays. First plain-paper fax machine is introduced.

1976 Spacecraft Viking Landers reach Mars. Lockheed SR-71 Blackbird sets a horizontal altitude of 85,069 ft. and a speed record of 2,193.64 mph. Commodore Business Machines announces the PET, the first fully assembled microcomputer; this Personal Electronic Transactor had 4K to 32K of RAM and only a b & W 9-inch screen. Queen Elizabeth II sends an e-mail by computer. The Sony Betamax SL-7200 VCR hits the market; forerunner to VHS. Supersonic Concorde commercial debut. The first Supercomputer in the world goes online, can process 80 million instructions per second, created by Cray Research; within 6 years there existed at least 50, price: $9-11 million.

1977 Japanese auto makers utilize 7,000 robots to replace human workers in automobile plants. Burning fuel at a ton per second, the space shuttle Columbia is launched into space, ushering a new era of reusable spacecraft. British and Australian scientists register Supernova Vela X. MRI scanners (magnetic resonance imaging) first used in medicine. The first all-woman American team to conquer Mt. Annapurna at 26,509 ft, two colleagues are killed. DEC announces first 32-bit computer in the world, the VAX-11/780 with 8K cache. Star Wars

premieres, the first major picture to use multi-channel surround sound in Dolby Stereo.

1978 Mercedes Benz pioneers anti-locking brakes. First test tube baby: Louise J. Brown. First test flight of the F/*A-18* Hornet fighter jet, max speed: Mach 1.8.

1979 Spacecraft Voyager I reaches Jupiter. Sony introduces the Walkman. British, Soviet and U.S. scientists aboard Glomar Challenger, using magnetic, acoustical and electronical devises, discover evidence of actual magnetic polar reversals. First successful flight of improved F-15C Eagle fighter jet; max speed: 1,650 mph. IBM begins production of 8088 microprocessor, equivalent to the power of 29,000 transistors. Westin Peachtree Plaza is the first hotel to use new technology key-card. Amtrac debuts double-deck full-domed luxury Superliners, on the Chicago-Seattle Empire Builder. "Mr. Coffee" has a built-in timer.

1980 At least 3,500 Industrial Robot Systems in place worldwide. Scitex introduces the first color electronic prepress. Inventor Arthur Fry creates "a bookmark that would stick" to the stationary world, now available in 62 colors known as the Post-it notes.

1981 Internet goes on line officially. First intercity **TGV** high-speed trains in France go on line at 236.2 mph. Supersecret Stealth Fighter (F-117A Nighthawk) composed of radar-absorbent material successfully takes to the air, max speed: 593 mph. IBM enters the personal computer market with a 256K RAM 16-bit 8088 microprocessor. Hewlett-Packard unveils production of a silicon chip equivalent to the power of 450,000 transistors.

1982 Barney Clark is the first recipient of a permanently attached artificial (mechanical) heart; he survives for 112 days. CD's are unveiled by Sony and Philips. About 2,000 laptop computers exist in the world, called briefcase portables. The FBI recovers $3.2 million worth of stolen computer chips, largest theft in Silicon Valley history.

1983 First flight simulator. Apple introduces the 16-bit desktop Lisa, with a palm-size pointer, known as a mouse, intended for office use. At least 8000 Industrial Robot Systems exist, mainly to replace human jobs. It cost $1.75 to $4.77 per hour to maintain a robotic system, as

opposed to $11 to $15 for skilled labor.

1984 Public use of the internet on a limited basis commenced. First laser printer: Canon LBP-CX. Apple introduces the Macintosh Computer. Alec Jeffreys invents DNA fingerprinting.

1985 First time lazers are used to clear blocked arteries. World's most powerful lazer is built in California. Philips/Sony compact discs and CD players sold commercially. Expensive mobile telephones available for the masses, with the debut of the Motorola DynaTAC 8000x, cost: $3,995. First transcontinental fiber optic cable is laid. PostScript computer language first used.

1986 Forerunner to the use of liquid nitrogen, J. Georg Bedborj and Alex Muller discover a whole new class of superconducting materials at IBM's Swiss Laboratory; the University of Houston under Professor Ching-Wu "Paul" Chu followed with the history making scientific discovery of cooling superconductors to -283 degrees F, 123° lower than the Swiss team, making computer superconducting practical. First stereo-sound TV. Embedding an electronic dictionary in a handheld device, the Franklin company creates the first e-book. High-Speed rail **TGV**-service is inaugurated between Paris, France, and Geneva, Switzerland. Dick and Burt Rutnam invent first plane to circle the globe nonstop; flew from California to California. Reinhold Messner ascends Mt. Lhotse, the 4th highest mountain in the world, and becomes the first man in history to reach all 14 world's tallest mountains.

1987 First nurse contracted Aids accidentally while on duty in a hospital. Arthur Walker of Stanford University produces first detailed pictures of the Sun's corona. The huge Human Genome Project is instituted with the aim to decode 3.1 billion chemical letters of human DNA (the public project) established with $3 billion, eventually leading into an international multibillion dollar project lubricated by over 80 robots that ran 24 hours a day, 7 days a week nonstop, to decode all the 100,000 genes on our 23 pairs of chromosomes and read the sequence of life. [In AD 2000, in connection with Celera Genomics, some 97% was announced as sequenced.]

1988 Giant magnetoresistance discovered, forerunner technology to spintronics and the M-RAM, spin-based computer random access

memory, dramatically reducing the need for electricity. Watlow manufactures advanced heater technology that assists in hospital patient pre- and post -operation. 1.6 million cellular phone customers. The Petronas Twin Towers are built in Kuala Lumpur, Malaysia, the tallest building in the world at 451.9 meters. The longest rail bore tunnel in the Western Hemisphere is completed, when the Canadian Pacific opens Mount Macdonald Tunnel in British Columbia.

1989 Digital photography skip the developing phase. The most expensive warplane ever built, at $570,000,000 each, the first of the 20 black stealthy B-2 Spirit's flies out of Palmdale, California. Discovery of cold fusion, transmitting the hydrogen from water into clean energy is announced by Doctors Martin Fleischmann and Stanley Pons. Apple introduces the first 1.4 MB floppy drive for the MAC platform. There are 340,000 personal computers with CD-Rom drives, no PC is equipped with off-the-shelf recording. Fluorescent bulbs last 24,000 hours.

1990 Huge global survey using the most modern instruments begun by the World Oceanic Circulation Experiment project. France's **TGV** *Atlantique* becomes the fastest train in the world at 322 mph. Stealthy superjet, Lockheed F-22 prototype, debuts using the most advanced fighterjet avionics system ever conceived cruising at 1,180 mph plus. Apple computer unveils MACS for the masses, including the Classic at $999 with 1 MB of RAM, 40 MB hard disk. Adobe Photoshop premieres. Full-motion desktop video and stereo sound announcement by Intel with the introduction of the i750 microchip. A hardcopy digital proof called Matchprint II, introduced by 3M, enters the publishing-pressroom scene. The TravelMate 2000 portable laptop by Texas Instruments, another new generation of computer, with a 20 MB drive, 1 MB of RAM, powered by a 12 MHz processor. Lockheed SR-71 Blackbird performs speed of 2,124 mph; max ceiling estimated at 101,400 feet; estimated cost to fly per hour: $200,000.

1991 The smallest and lightest missile to date developed for the U.S. Army is tested: the rocket engine weighs 1/10th of an ounce, has a 4.2 million-instructions-per-second computer, and is less than 1 inch long. Sound Retrieval System (SRS) developed by Hughes, revolutionary system of the future enabling listeners to enjoy an effect recreating the dynamic range of the original performance. A tiny chip containing 97,600 infrared detector elements, the hybrid Schottky platinum sili-

cide focal plane array, allows the study of sunspots better. Improved method for processing Gallium Arsenide Microwave/Millimeter Wave Monolithic Integrated circuits (MIMIC). A tiny robot, built by German Rudolph Gantenbrink, discovers a secret stone door in an air-starshaft passage inside the Great Pyramid of Giza, Cairo, Egypt. The special method to save and manipulate images using TIFF files is formed in desktop publishing officially: TIFF/IT. Toshiba America introduces the 3x zoom lens MC200 digital camera which saves pictures on a 2MB card, for only $12,500.

1992 Jean Armour Polly invents "Surfing the Internet." Ushering a new era in high-speed trainsets, the Swedish-built X2000 conducts tests in the United States. Birth of digital cellular telephone service. Birth of the 70'' raised-roof double bunk sleeper diesel cab, the Freightliner, provides unsurpassed style, comfort and efficiency for long-haul truck drivers. Cancer-fighting compound is discovered in broccoli, cauliflower and brussel sprouts.

1993 Significant astronomical tool of all time, the Earth orbiting Hubble telescope with a great 12-ton reflector, has optical systems fine-tuned and improved. Heidelberg GTO-DI Press with PEARL laser-imaging revolutionizes color printing, with its direct-to-plate imaging technology, eliminating the four film conventional film process. Significant release of the first computer Pentium processor, equivalent to the power of over three million transistors. The White House is tied to the world wide web. Argentinosaurus, the largest dinosaur known to have walked the Earth, is discovered in South America. A significant super energy saver invented by Shuji Nakamura of Japan: a mass-producible tiny blue light-emitting diode that boosts clarity on anything from traffic lights to big-screen televisions, which also increases capacity on digital video discs.

1994 Spectacular pictures of Comet Shoemaker-Levi slamming into Jupiter. Shopping malls on the internet become real. First Virtual is the first bank on the internet. A 12,500 year-old fossil wooly mammoth discovered by John Hebior, would eventually lead to evidence that PaleoIndians hunted the huge beasts; this finding in Wisconsin becomes one of the most important Ice Age discoveries in North America. Stretching across 8,000 miles of the Pacific, the first El Niño warning system of some 70 scientific transmitter buoy's in place. Eurostar train

crosses the English Channel under a tunnel linking the capital cities of Paris and Brussels to London; Eurostar operates at 188 mph. Lionel Trains introduces a wireless remote control to power toy trains. Zip drive instituted by Iomega.

1995 RealAudio, an internet audio streaming technology allows users to real time sound via computer. The first national DNA database used to apprehend convicts debuts in England. Photovoltaic cells power an automobile. Plasma television with a flat screen is introduced. Commercial 24 hour internet-only radio stations begin broadcasting, the first is Radio HK. Timekeeper and GPS, Global Positioning Satellites, 24 satellite navigation system established. SOHO satellite launched, a solar and heliosphere observatory built in Europe, with instruments provided by U.S. and European scientists. Southwest Airlines is the first major carrier offering system-wide ticketless-travel. Less than one-half of 1 percent of all counterfeit money is created by computer.

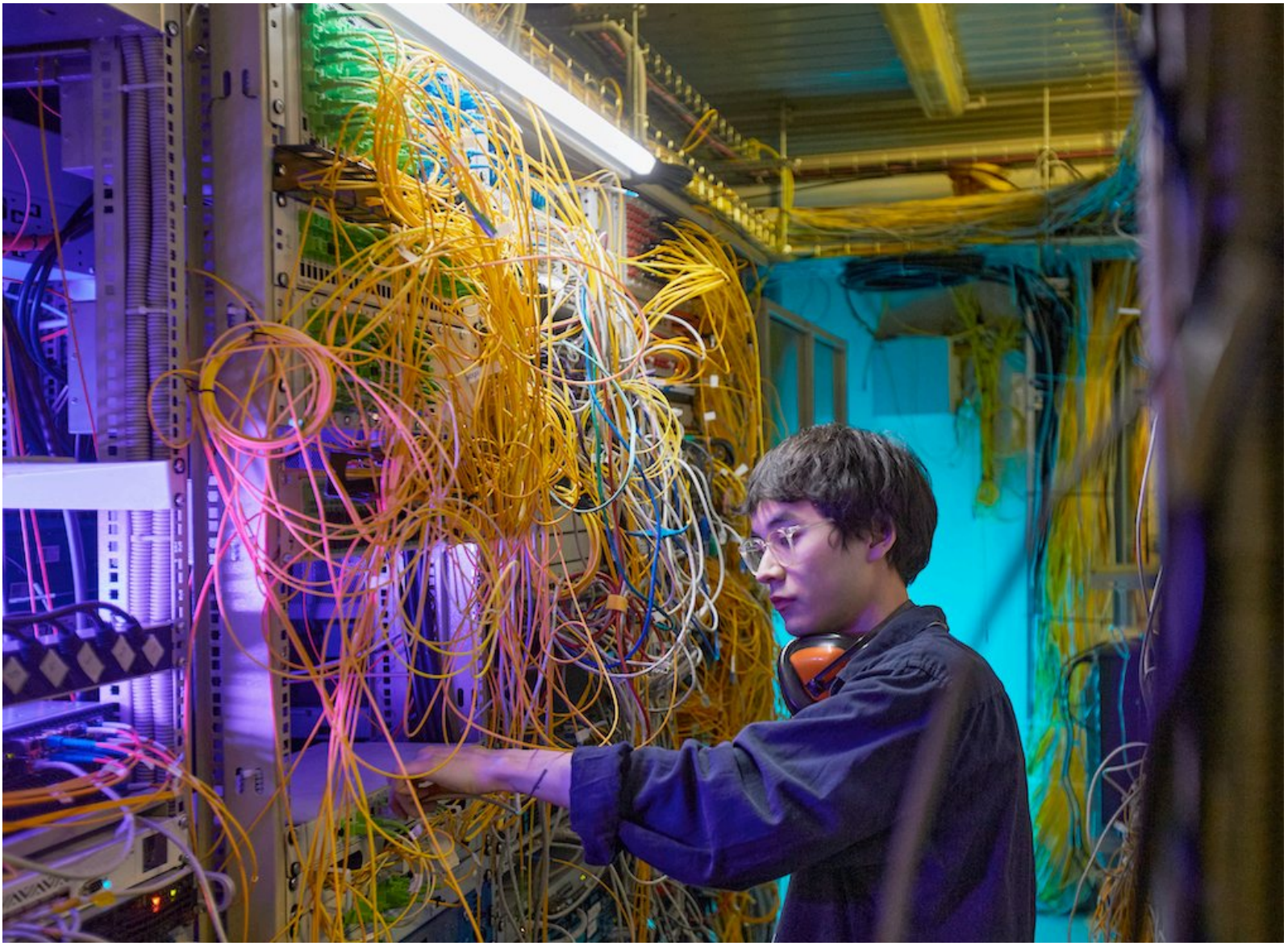
1996 Four billion people watch the summer Olympics. Sleek double-deck CityNightLine debuts, first economic all-sleeping "hotel train" service in Europe. The first High Definition television is introduced by Zenith. Major change in U.S. currency. Dolby the sheep secretly cloned.

1997 Unmanned explorer Pathfinder lands on the planet Mars. Scientists accomplish quantum teleportation beam in Innsbruck and Rome. Motorola launches first 17,500 mph low-Earth satellites that provide internet and telecommunications anywhere in the world. Art Bell conducts transmission of first interactive live show on both radio and internet. The speed of modems reaches 56 Kbps. Sony Mavica digital camera debuts. Paleontologist Luis Chiappe discovers thousands of dinosaur eggs in Argentina, including at least six rare fully preserved unhatched titansaurs detailing anatomy and skin texture. Jet powered car, Thrust SSC, driven by Andy Green of Great Britain breaks land speed record at 763.035 mph.

1998 High Definition TV (HDTV) debuts (regular analog TV broadcasting expected to stop in AD 2006). First time an American airline has more passengers buying electronic tickets than paper tickets, United Airlines. The Intel Pentium II silicon-crystal-wafer-like gallium arsenide chip unveils commercially: smaller, lighter chips that consume less energy.

Survival hand-crank radios go on sale to the public in mass-production. Developed first as a blood pressure treatment, FDA gives Pfizer the approval to mass-market Viagra; it is claimed a man took 7 pills one night and his wife died. In a special pressurized capsule, the Breitling Orbiter 3 is the first balloon in the world to circumnavigate the globe. The intensity of the magnetic field of Earth discovered to be twice as high as normal according to Scripps Oceanography. Heathrow Express linking London with Heathrow Airport debuts. The iMac computer sells commercially. Microsoft surpasses General Electric as the world's most valuable company; $345 billion vs $324 billion. U.S. Army selects a new rifle that can shoot ammunition around corners. Sixty million cellular phone customers. FBI opens a national DNA database of convicts. In a secret scientific experiment in Ohio, surgeons switch the heads of three monkeys and keep them alive with oxygenated blood for a week-monkey experiments in Beaverton, Oregon, produces a monkey that glows in the dark within 3 years. The PearlGold processless thermal printing plate introduced by Presstek. The Kodak DC 260 digital camera with 8MB storage card, 1.5 megapixel range and 3x zoom lens, voted one of the year's greatest achievements in science and technology by Popular Science, makes a commercial hit at under $1000. Japan launches first Mars probe. First hand transplant amazes the world. Deep Space rocketship launched, first time a solar-powered ion-propulsion engine was primary device, reaching speeds of 62,000 mph. (Yes, sixty two thousand.)

1999 Eureka robot vacuum cleaner debuts. NASA's AXAF (Advanced X-Ray Astrophysics Facility) $1.2 billion high elliptical solar-panel satellite, after 20 years of research and design, begins to conduct special x-ray universe observations. Amtrac unveils High-Speed Acela Express that tilts. United Solar and Solar Design Associates develop a new type of photo-voltaic panel to create heat and electricity from sunlight, called the Phototherm. TiVo digital video recorder debuts. Hughes Space Communications introduces DirectTV 1-R, the first satellite launched from the sea. Largest passenger ship in the world, Royal Caribbean's 3,838 passenger cruise ship, Voyager of the Seas, a 142,000 ton behemoth of the seas, is launched. Intel unveils the Pentium III chip. A new generation of imaging satellites is launched (Ikonos), capable of 1-meter resolution. Terra Satellite, flagship of the Earth Observing System (EOS), launched by NASA in hope of utilizing five state-of-the-art sensors to diagnose the Earth's climate, capable of 15-



meters resolution. Women's Soccer World Cup match seen by over a billion people, the U.S. becomes world champions defeating China. New corneal implants give nearsighted persons 20/20 without glasses or contact lenses. Number of electronic tickets issued for air travel exceeds paper tickets. Number of cell phones in America exceeds 85 million. The Leechulator first molecular biological computer, built at MIT, forerunner to computer transistors on an atomic level. First hydrogen fuel station opens. Frigidaire Concept Refrigerator with bar code scanner invented. Apple Computer introduces the AirPort, the world's first wireless network invention. Nikon Coolpix digital camera breaks the 2 megapixel barrier. World's smallest transistor: a 50-nanometer transistor, about 1/2000 the width of a human hair. Close to 45 percent of all counterfeit money is created by computer. Cadillac automobile utilizes thermal-imaging night vision. Incandescent bulbs last 1,500 hours. Fluorescent bulbs last 100,000 hours. Kyocera VP-210 Visual phone goes on sale commercially, in Japan, world's first full color video cellular phone invention, with a miniature camera and a 2-inch window for transmitting real-time audio-video and video answering machine. Number of people who use web for gambling 56 million; 100 gambling companies on the web.