August 29th

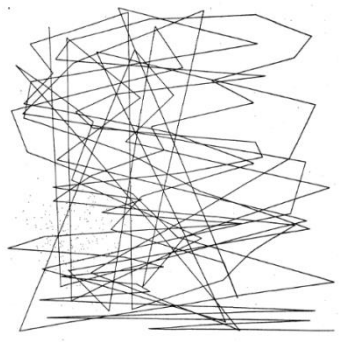
A. Michael Noll

Born: Aug. 29, 1939;

Newark, New Jersey

Noll was one of the "3N" computer graphics pioneers, along with Frieder Nake [Dec 16] and Georg Nees [June 23], who participated in the "Cybernetic Serendipity" exhibition on [Aug 1] 1968 .

Noll programmed his first art in the summer of 1962 at Bell Labs [Jan 1], using FORTRAN, with the help of vector graphics packages he had written. The software ran on an IBM 7090 [Nov 30] and the output was printed on a Stromberg-Carlson 4020 microfilm printer (which cost approximately $500 per minute of output). He wrote up the technical details in "Patterns by 7090", which was published on Aug. 28, 1962, and included eight figures which may well be the first "published" computer artwork.



Pattern One. From "Patterns by 7090" by A. Michael Noll (1962).

Noll's art was first shown as part of the "World Exhibition of Computer Graphics," held at the Howard Wise Gallery in NYC from April 8 - 24, 1965. Other works in the show included random dot stereograms by Béla Julesz (1928 – 2003), and computer-generated ambient music, perhaps by Max V. Mathews [Nov 13] or John Pierce [March 27]) of Bell Labs. *The New York Times* art critic Stuart Preston said of the exhibition: "The wave of the future crashes significantly at the Howard Wise Gallery."

Although it was the first computer art show in the US, Georg Nees' exhibition in Stuttgart was the world's first [June 23].

In the late 1960s and early 1970s, Noll constructed several interactive 3D input devices, including a 3D tactile, force-feedback device called the "feelie", which he patented in 1971. He was also an early pioneer of stereoscopic computer-animated movies.

Kurt Mehlhorn

Born: Aug. 29, 1949;

Ingolstadt, West Germany

Mehlhorn has made fundamental contributions in several areas, including computational geometry, parallel computing, and graph algorithms. He's perhaps best known as one of the developers of LEDA, the Library of Efficient Data types and Algorithms. It offers C++ implementations of a broad variety of algorithms for graph theory and computational geometry.

The cover of the leading LEDA textbook prominently features a swan, which references the Greek myth of Leda, a Spartan queen, who suffered from the advances of Zeus in the guise of a swan.

Soviets' Bomb

Aug. 29, 1949

At a remote test site in Kazakhstan, the USSR detonated its first atomic bomb, shocking the US intelligence agencies who believed the Soviet Union was years away from such capabilities.

The next year, an Air Defense report concluded that the US was unprepared for the threat of an air attack by the Soviets. Cold War fears of an impending nuclear winter led to generous funding for the foundation of MIT's Lincoln Lab [Dec 15], which was tasked with improving the nation's air defense system as part of Project Charles.

One result was an early warning system demo that combined information from several radar systems in the Cape Cod area, which ran on Jay Forrester's Whirlwind [April 20] machine. It was only a qualified success, because of Whirlwind's slow speed.

Fortunately, the continuing Cold War threat meant that the Air Force continued funding. The renamed Project Claude set out to build a military-grade version of Whirlwind, which eventually became the influential SAGE project [June 26].

Thomas G. Zimmerman

Born: Aug. 29, 1957;

Texas

Zimmerman helped establish the field of virtual reality (VR) through his Data Glove, and its successor, the Nintendo Power Glove [Oct 00].

The 1982 Data Glove patent (US 4542291) describes how optical flex sensors mounted on a glove measure finger bending. Zimmerman tested the idea by gluing a LED tube on one side of an old gardening glove, and a detector on the other side.

Jaron Lanier [May 3] and Zimmerman founded VPL Research in 1984 to sell the Data Glove, the EyePhone (a head-mounted display), and the DataSuit (a full-body outfit). The EyePhone was most memorably featured in the 1992 sci-fi movie "The Lawnmower Man".

The Data Glove wasn't the first VR hand device; that honor belongs to the Sayre Glove, created at the Electronic Visualization Lab in 1977 by Tom DeFanti [Sept 18] and Dan Sandin [Nov 14]. It used flexible tubes with a light source at one

end and a photocell at the other.

Gemini 5 Misprogrammed

Aug. 29, 1965

The main objective of the eight-day Gemini 5 space mission was to evaluate the performance of the ship's guidance and navigation system. It also set a new record for time in space.

Gemini 5 was guided by the Orbit Attitude and Maneuvering System (OAMS) when it re-entered the atmosphere on this day. But the system had been misprogrammed with an erroneous rotation rate for the Earth (360 degrees per day instead of 360.98 degrees).

The Gemini 5 spacecraft is brought aboard the recovery ship. Photo by NASA.

Astronaut L. Gordon Cooper changed the angle of the reentry module to a grueling 90 degrees to compensate, and the capsule splashed down safely in the Atlantic 170 km from its planned landing point.

Gödel Proof Not Published

Aug. 29, 1974

Today's unpublished proof wasn't concerned with Kurt Gödel's [April 18] incompleteness theorems [Nov 17], which had appeared in print in 1931. This proof was a formal argument for God's existence, which Gödel had started to put together in the early 1940's. On this day, he told Oskar Morgenstern that he was "satisfied" with the proof, but had decided not to publish it.

It was inspired by an attempt by Gottfried Leibniz [July 1], but utilized modal logic and an argument based on whether God existed in multiple possible worlds.

Alone in the Dark Released

Aug. 29, 1992

"Alone in the Dark" was a Lovecraft-inspired "survival horror" video game (the first of its kind), designed by Frédérick Raynal for Infogrames. The aim was to navigate a mansion (rendered in 3D), solving puzzles while avoiding or destroying zombies, rat-like monsters, and other nasties. It influenced many later games, including the "Resident Evil" franchise.

Prior to "Alone in the Dark", Raynal had ported "Alpha Waves" (1990), the first true 3D platform game over to MS-DOS [Aug 12] from the Atari ST [Jan 10]. It was a complete rewrite in C of the original Motorola 68000 assembly by Christophe de Dinechin.

BackRub Reports

Aug. 29, 1996

In search of a dissertation topic, Larry Page [March 26] started considering the link structure of the Web. His research project became known as "BackRub", for its ability to analyze "backlinks": the pages that link to a given page. He wanted to work out a method to count and qualify each backlink, so that pages could be ranked. The tricky problem was that each backlink needed its own ranking, based on the backlink count of its originating page. However, Page was helped by now working with Sergey Brin [Aug 21], whose math skills were exceptional. The result was the PageRank algorithm, and BackRub would later be renamed Google [Sept 15].

Page's crawler began exploring the Web in March 1996, with his home page as its starting point. The earliest surviving statistics from its searches were recorded on this day, including that some 30 million pages had been indexed. The primary database was stored on a Sun Ultra II [July 00] with a 28 GB disk.

The first published paper about PageRank, "The anatomy of a large-scale hypertextual Web search engine", appeared in April 1998.

PageRank was patented (US 6285999) on Sept. 4 2001, but was assigned to Stanford University, not Google. However, Google has exclusive license rights to use it, for which the university received 1.8 million Google shares, which they sold in 2005.

Judgment Day

Aug. 29, 1997

Cyberdyne's Skynet global computer network went online on Aug. 4, 1997, whereupon human decision making was removed from the problem of strategic defense. Skynet began to learn at a geometric rate, and became self-aware at 2:14am, Eastern time, on this day.

Human operators attempted to shut Skynet down, and it responded, perfectly reasonably, by firing nuclear missiles at Russia. This initiated a nuclear war on what became known as Judgment Day. For more details see [Oct 26; July 3].

Although all of this was just a movie fabrication, there is a real Cyberdyne company. It was founded on June 24, 2004, by Yoshiyuki Sankai, a professor at the University of Tsukuba, to develop his ideas for an exoskeleton suit. As of Feb.

2013, Cyberdyne had leased 330 of its HAL 5 (Hybrid Assistive Limb) powered exoskeletons across Japan.

Netflix Founded

Aug. 29, 1997

Netflix was founded by Reed Hastings and Marc Randolph, as the world's first online DVD rental store, which began operation on April 14, 1998.

In the late 2000s, it started offering video on demand via the Internet. By 2011, it was clear that online streaming was the future, and the company entered the content-production business in 2012, debuting its first series, Lilyhammer.

In the late 1990s, Hastings had offered to form a partnership with Blockbuster Video, but its CEO, John Antioco, laughed in his face. In 2010, Blockbuster declared bankruptcy and as of 2020, there was one Blockbuster store left, in Bend, Oregon. At the same time, Netflix had over 190 million paid subscriptions worldwide.

CLIÉ Unveiled

Aug. 29, 2000

The Sony CLIÉ was a series of PDAs running Palm OS [March 10] which placed an emphasis on multimedia capabilities before many other PDAs had such capabilities. For instance, its clamshell form factor included a camera on the hinge to take selfies, an element well ahead of its time. It also sported an adjustable landscape screen making it more suitable for watching movies.

The CLIÉ PEG-TH55 boasted a camera on the back, Wi-Fi, and a large 320 x 480 pixel touchscreen, features which only became common some five years later.

However, the CLIÉ range began to fall from grace as Palm OS started to falter in the face of Microsoft's Windows Mobile [Jan 4].

A CLIÉ PEG-NZ90 Personal Entertainment Organizer. Photo by Fbot.

The CLIÉ name was an acronym of "creativity, lifestyle, innovation, and emotion", or perhaps "communication, link, information, and entertainment". The word means "tool" in Jèrriais, the Norman language spoken in Jersey, one of the Channel Islands.

Skype Goes Public

Aug. 29, 2003

Skype, the video chat, text messaging, and voice call service, was founded by Niklas Zennström, and Janus Friis, and was built around a proprietary Internet telephony VoIP (Voice-over-IP) network. Most of the development team was situated in Tallinn and Tartu, Estonia.

On May 10 2011, Microsoft acquired Skype for $8.5 billion, roughly ten times the revenue of the company at the time. Microsoft may have been prepared to pay so much because Skype was reportedly growing at the rate of 500,000 new registered users per day at the time.

The 2013 disclosures by Edward Snowden [June 21] included the revelation that the NSA and the FBI had the ability to eavesdrop on Skype communications.

Skype was far from being the first VoIP service: the first commercial software was released nearly a decade before, on [Feb 10] 1995.