

Russell Kirsch

Russell A. Kirsch (June 20, 1929 – August 11, 2020) was an American engineer at the National Bureau of Standards (now known as the National Institute of Standards and Technology).^[4] He was recognized as the developer of the first digital image scanner.

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Background

Education

Kirsch was born in Manhattan on June 20, 1929. His parents were Jewish emigrants from Russia and Hungary.^[5] He attended the Bronx High School of Science, graduating in 1946. He continued his education at New York University in 1950, Harvard University in 1952, and later the Massachusetts Institute of Technology.^{[2][5]}

Personal life

Kirsch was married to Joan (née Levin) Kirsch for 65 years until his death. Together, they had four children: Walden, Peter, Lindsey, and Kara.^[5] Kirsch spent most of his professional life in Washington, D.C., where he was affiliated with the National Bureau of Standards for nearly 50 years. He moved to Portland, Oregon, in 2001^[5] after his retirement.^{[3][6]}

Kirsch died on August 11, 2020, at his home in Portland. He was 91 and had suffered from dementia in the time leading up to his death.^[5]

Russell Kirsch



Russell Kirsch in Portland, Oregon with Joel Runyon^[1]

Born	June 20, 1929 <div><u>Manhattan, New York, U.S.</u></div>
Died	August 11, 2020 (aged 91) <div><u>Portland, Oregon, U.S.</u></div>
Education	<u>Bronx High School of Science</u> (1946), <u>BEE New York University</u> (1950), <u>SM Harvard University</u> (1952), <u>American University, Massachusetts Institute of Technology</u> ^[2]
Occupation	<u>Computer scientist</u>
Known for	First digital image scanner
Spouse(s)	Joan (née Levin) Kirsch
Children	Walden Kirsch (<u>KGW reporter</u>), 3 other

Career

In 1951 Kirsch joined the National Bureau of Standards as part of the team that ran SEAC (Standards Eastern Automatic Computer).^[2] SEAC was the U.S.'s first stored-program computer to become operational, having entered service in 1950.^[7]

In 1957, Kirsch's group developed a digital image scanner, to "trace variations of intensity over the surfaces of photographs", and made the first digital scans. One of the first photographs scanned,^[8] a picture of Kirsch's three-month-old son, was captured as just 30,976 pixels, a 176 × 176 array, in an area 5 cm × 5 cm (2" x 2").^[9] The bit depth was only one bit per pixel, stark black and white with no intermediate shades of gray, but, by combining several scans made using different scanning thresholds, grayscale information could also be acquired.^[8] They used the computer to extract line drawings, count objects, recognize alphanumeric characters, and produce oscilloscope displays.^[9] He also proposed the Kirsch operator for edge detection.^[10]

Later in life, Kirsch became the director of research of the Sturvil Corporation and an advisory editor for the Institute of Electrical and Electronics Engineers (IEEE). He was the advisory editor of the journal *Languages of Design*.^[2]

Accomplishments

In 2003 Kirsch's scanned picture of his son was named by *Life magazine* one of the "100 Photographs That Changed the World"^[9] due to its importance in the development of digital photography. The original image is in the Portland Art Museum.^[3] Although Kirsch did not work for NASA, his invention led to technology crucial to space exploration, including the Apollo moon landing. Medical advancements such as Sir Godfrey Hounsfield's CAT scan can also be attributed to Kirsch's research.^[9]

References

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children^[3]



Pioneering digitally scanned image of Russell Kirsch's son Walden, 1957

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9. Newman, Michael E (May 24, 2007), "Fiftieth Anniversary of First Digital Image Marked", *Tech Beat* (https://www.nist.gov/public_affairs/releases/image_052407.cfm) (news release), NIST, retrieved March 31, 2010.
10. "Russell A. Kirsch – Obituary" (<https://obits.oregonlive.com/obituaries/oregon/obituary.aspx?n=russell-a-kirsch&pid=196629194>). *The Oregonian*. August 11, 2020. Retrieved August 12, 2020.

Further reading

- "Computer Development (SEAC and DYSEAC)" (<http://nvlpubs.nist.gov/nistpubs/circ/1955/circ551-scan1.pdf>) (PDF), *Circular*, Washington, D.C.: National Bureau of Standards, **551**, January 25, 1955.

External links

- Kirsch talking about the SEAC computer (<https://www.youtube.com/watch?v=IF0TA9O3Dc8&t=304s>)

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