

## Historical Highlight

### Ivan Sutherland (1938– )

Many people call Ivan Sutherland a modern-day pioneer. This engineer, professor, and entrepreneur has broken much new intellectual ground in the field of computers and continues to do so. His desire to know how things work and his love of problem solving have taken him far.

Sutherland's interest in computers started in high school in the 1950s, when he learned to program a relay-based computer. Computers of any kind were then rare; this was long before high school students had access to them. Sutherland went on to study electrical engineering at Carnegie Tech, now Carnegie Mellon University; he received an M.S. from the California Institute of Technology (Caltech), and a Ph.D. from the Massachusetts Institute of Technology (MIT). His 1963 Ph.D. thesis, entitled "Sketchpad, a Man Machine Graphical Communication System," made engineering drawing on a computer screen possible for the first time. For this work, Sutherland is often called the "father of computer graphics."

As a young associate professor at Harvard University, Sutherland developed a Head-Mounted Display system. The idea was simple: The computer shows the user exactly what

he or she would see when facing in any direction. Today we call this idea "virtual reality." To build the first such system, Sutherland and his students had to invent everything from equipment to measure head position to algorithms for eliminating material outside the user's field of view.

In 1968 Sutherland cofounded Evans and Sutherland (E&S), now a major manufacturer of very high performance displays. E&S supplies a majority of the displays used worldwide to train airline pilots. Sutherland was concurrently a part-time, tenured professor at the University of Utah. His students from that period have become today's major contributors to the international field of computer graphics.

In 1976, Sutherland became a professor at Caltech to start and head a computer science department. By following the ideas of his cofounder, Carver Mead, and concentrating on the design of integrated circuits, the small group at Caltech established integrated circuit design as an acceptable field for academic study.

Sutherland continues active work today in advanced hardware systems at Sun Microsystems.

<http://www.sun.com/960710/feature3/ivan-profile.htm>