

# The History of Virtual Environments

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## Stoneage early people: Cave painting



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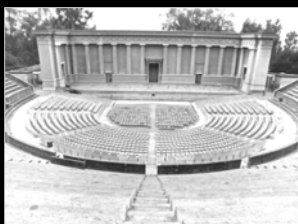
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## 500 BC the greeks: Theatre



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1310  
giotto: Painting Depth



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1455  
gutenberg: Printing Press



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1455  
gutenberg: Printing Press



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1838

wheatstone: Stereoscope



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1884

paul philippoteaux: Cyclorama



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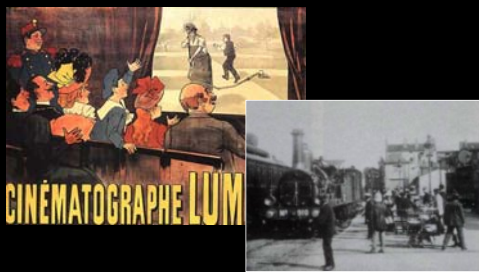
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1895

lumiere and melies: Cinematographe



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1920

edwin link: Flight Simulators



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1941

NBC: Television



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1952

fred waller: Cinerama



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1960

morton heilig: Sensorama



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1965

ivan sutherland: The Ultimate Display

- "We live in a physical world whose properties we have come to know well through long familiarity. We sense an involvement with this physical world which gives us the ability to predict its properties well. For example, we can predict where objects will fall, how well-known shapes look from other angles, and how much force is required to push objects against friction. **We lack corresponding familiarity with the forces of charged particles, forces in non-uniform fields, the effects of nonprojective geometric transformations, and high-inertia, low-friction motion.** A display connected to a digital computer gives us a chance to gain familiarity with concepts not realizable in the physical world. It is a looking glass into a mathematical wonderland."

"The Ultimate Display", 1965

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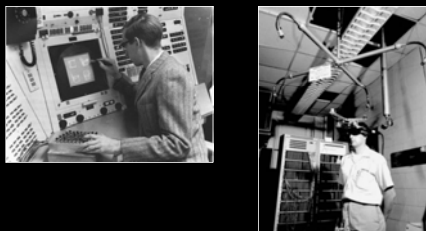
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1965

ivan sutherland: The Ultimate Display



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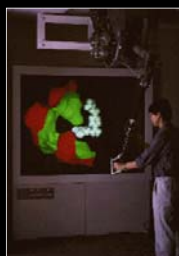
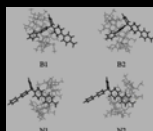
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1967

fred brooks: Force Feedback



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1972

atari: The Arcade



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1980s

DARPA: SIMNET



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1985

UNC: Architectural Walkthrough



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1986

NASA: VIVED



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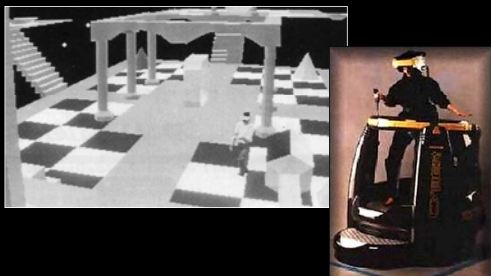
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1991

w industries: *Virtuality*



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1993

id and cyan: Popular 3D Games



Doom



Myst

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