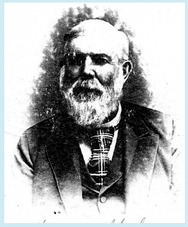
π in the Computer Age

Computing π by Hand

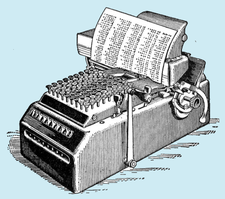
Shanks (1837) and Ferguson (1945)



In 1837, British mathematician William Shanks made the stunning claim to have calculated π to 707 digits. This astonishing feat was left unchallenged for over 70 years, when in 1945 mathematician D.F. Ferguson, using only pen and paper, discovered an error in the 527th place of Shank's approximation.

Wrench and Smith (1948)

In 1948, John William Wrench and Levi Smith verified Ferguson's work and continued the calculation to 1,000 places using a gear-driven calculator.



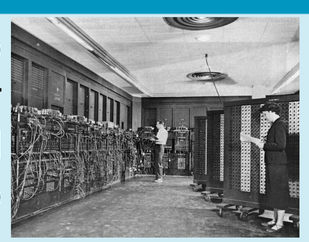
Computing π by Computer

"Computers, of course, blew hand calculations out of the water"

- William Dunham

The ENIAC (1949)

John Wrench, and L. R. Smith were the first to use an electronic computer to calculate π. Their computer, the Electronic Numerical Integrator And Computer (ENIAC), took 70 hours to complete the task. They achieved 2,037 digits.



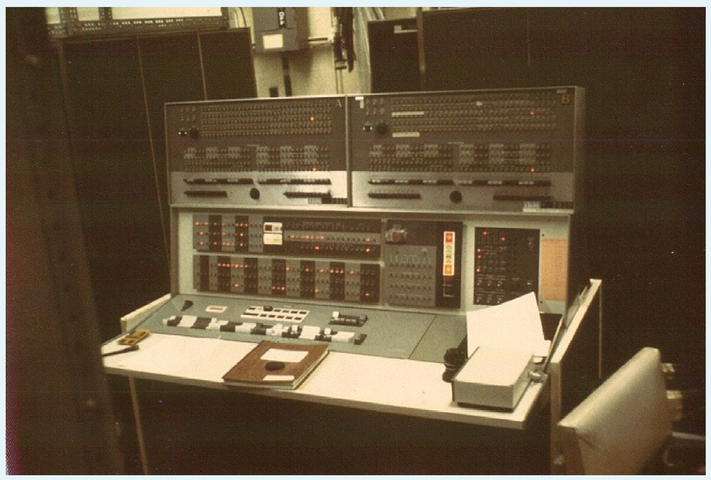
NORC (1954)

The IBM Naval Ordnance Research Calculator (NORC) was a one-of-a-kind first-generation (vacuum tube) computer built by IBM for the United States Navy's Bureau of Ordnance. S.C. Nicholson and J. Jeenel used the NORC to improve the previous computation by about 1,000 digits. The truely impressive aspect of this feat however, is that they managed to do it in only 13 minutes!

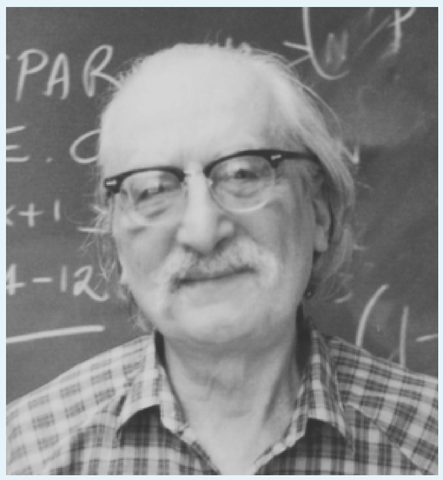
Ferranti Pegasus (1957)

George E. Felton, using the Ferranti Pegasus computer in London calculated 10,021 digits, but not all were correct. He correctly achieved 7,480 decimal places.

IBM 7090 (1961)



IBM 7090



Daniel Shanks

The next substantial jump in digits computed came in 1961 from Daniel Shanks and John Wrench. They used the IBM 7090. It took 8.7 hours and they achieved 100,265 digits.