

West Area Computers

TRAILBLAZERS IN
AMERICAN SPACE HISTORY

From the 1940s until the 1980s, many African American women worked as “computers” at NASA (National Aeronautics and Space Administration).

“Math Whizzes in Skirts”

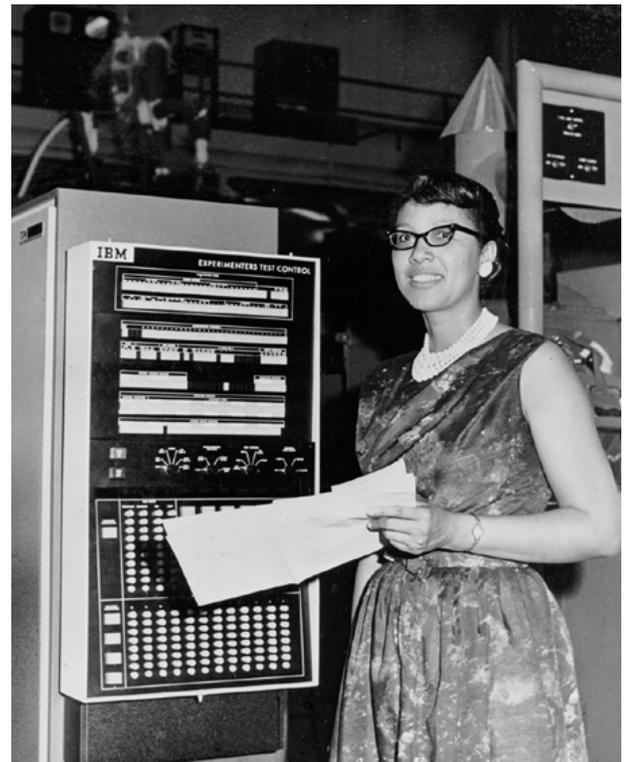
When we think of computers, we often think of blinking lights and whirring fans. But before electronic computers, the term “computer” referred to people, usually women, who performed complex mathematical calculations.

Human computers have a long history dating back to the 18th century when computers would assist with astronomical and military calculations. In the 20th century, the role of computers became a gendered role as women processed large-scale data that would support the work of male engineers and scientists.

The Langley Research Center of NASA began hiring women computers starting in the 1930s and especially during World War II. With many men being drafted or

volunteering for war, industries which had previously been closed to women and people of color were opened temporarily. African American women with degrees in mathematics began to be hired for these positions. Many of them came from nearby HBCUs such as Hampton University and Virginia State University.

African American computers worked, ate, and even used the restroom in segregated facilities in the West Area at Langley, producing the name “West Area Computers.” Facilities were so thoroughly segregated that white computers often were not even aware of the presence of the West Area Computers. Computers were regularly “loaned” to different branches of NASA, which is how many African American women first entered these areas.



Melba Roy Mouton was a Howard University alum who became Assistant Chief of Research Programs at NASA's Trajectory and Geodynamics Division in the 1960s. She headed a group of NASA mathematicians called "computers". Image courtesy Wikimedia Commons.

Katherine G. Johnson

Physicist and mathematician Katherine G. Jackson made a significant mark in history at NASA, becoming one of the first women to work closely with the space program. A native of West Virginia, Johnson graduated from West Virginia High School at 14 and from West Virginia State University at 18. A math prodigy, she would go to work, literally as a “computer” for Langley Research Center, a part of NACA—the National Advisory Committee for Aeronautics, which was later changed to NASA.

Johnson and the many other women at Langley Air Force Center were described as “math whizzes in skirts.” Her all-female team would perform mathematical calculations and read the data from the black boxes of planes. It was only on a day where she was asked to fill in

Katherine Johnson calculated trajectories and orbits for historic missions including the first flight to put a man on the moon. She also helped develop space navigation systems to guide the astronauts. Image courtesy of MAKERS

on the all-male flight research team that Johnson made her way up the aeronautics ladder.

Johnson then moved from the all-male Flight Mechanics Branch to the Spacecraft Controls Branch. There, she would also calculate the trajectory that put Alan Shepard (the first American) in space and for the historic Apollo 11 flight to the moon in 1969. Now 98, Johnson is retired and resides in Hampton, VA.

Christine Mann Darden

Mechanical engineer Christine Darden was hired as a computer at NASA Langley Research Center in 1967. Born in Monroe, North Carolina, Darden’s interest in mathematics started when she was a young girl. She and her father used to explore the mechanics of bicycles and cars. She entered Hampton Institute when she was only 15 and majored in education because of the lack of prospects of finding a job in mathematics for an African American woman. Later, she would take study physics and mathematics at Virginia State College, and earn an M.S. in mathematics in 1967, the same year she accepted a position at the NASA Langley Research Center in Hampton, Virginia.

Christine Darden started as a computer at NASA in 1967 but rose to the position of engineer. She worked for 25 years on sonic boom minimization. Image courtesy of the National Air and Space Museum, Smithsonian Institution.

Darden started at Langley as a computer. In the 1970s, electronic computers were being introduced on a wider scale. Darden was one of the first people that worked on developing computer programs. She also asserted herself and entered the engineering world, researching sonic boom minimization. In 1983, she received her Ph.D. in engineering. Her career demonstrates the immense contributions that African American women have made to the history of space science.



NASA OPPORTUNITIES



One Stop Shopping Initiative (OSSI) is a great resource for students as young as sophomores in high school to learn about internships, summer camps, scholarships and more.

Students have the ability to search and apply for all types of NASA internships, fellowships, scholarship opportunities in one system. A single internship or fellowship application places students in the applicant pool for consideration by mentors for all NASA internships or fellowships. NASA programs include design competition challenges and volunteer outreach opportunities.

Apply today!
<https://intern.nasa.gov/ossi>

RESOURCES

ScienceMakers Digital Archive,
www.thehistorymakers.com/sciencemakers

NASA Human Computers Wiki: http://crgis.ndc.nasa.gov/historic/Human_Computers

NASA Langley History:
http://www.nasa.gov/centers/langley/news/researchernews/rn_CDarden.html