

From string theory to clothes wringers: A historical map of women shaping science and technology

Compiled by Sonia Randhawa

2000 BCE

Enheduanna

(c. 2285-2250 BCE)

An astronomer, one of the first written poets, and High Priestess of the Moon Goddess, writing about 300 years after the invention of cuneiform letters.

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Aglaonike

(2nd century BCE)

Astronomer who could predict eclipses.

Hypatia

(370-415 AD)

Mathematician and natural philosopher. Developed scientific instruments including a hydrometer that measured “specific gravity” of liquids – used today to check a car battery’s charge by testing the acid.

1000

Fatima de Madrid

(10th-11th century AD)

Corrected Arabic astronomical tables, collaborated with her father in mathematical investigations.

1800

Maria Gaetana Agnesi

(1718-1799)

Discovered a solution for an algebraic problem, still used today, plotted on a curve called “the witch of Agnesi”.

Maria Angela Ardinghelli

(1728-1835)

Renowned physicist and mathematician.

Wang Zhenyi

(1768-1797)

Astronomer who modelled how lunar eclipses were caused. A Venusian crater is named after her.

1850

Ada Lovelace

(1842-1843)

Wrote the first computer programme and originated the concept of using binary numbers. Imagined a greater potential for one of the earliest computer models than simply crunching numbers.

Hertha Marks Ayrton

(1854-1923)

Physicist who worked on electric arcs and sand ripples.

Beulah Louise Henry

(1887-1973)

Dubbed “Lady Edison” by the media. First patent at age 25 for an ice cream freezer with a vacuum seal. Created hundreds of items including a hair curler, typewriter attachments, and movable dolls that could kick, blink, eat and even talk.

Ellen Eglin

(1880s)

Invented a highly successful clothes wringer but did not patent it. Sold it for a small amount because she believed that white women would not use the wringer if they knew it was created by a black woman.

Elizaveta Ivanova

Karamihailova

(1897-1968)

Pioneered nuclear physics in Bulgaria. She also initiated experimental nuclear physics in the country.

1900

Rosza Peter

(1905-1977)

One of the founders of computational theory, who suffered persecution under the Fascists in Hungary and worked to secure opportunities for girls to study mathematics in Soviet Hungary.

Grace Hopper

(1906-1992)

In 1944, she was one of the first programmers for the Harvard Mark I Calculator, the earliest large-scale automatic digital computer in the USA. She also developed the first compiler for a computer programming language.

Paris Pismis

(1911-1999)

One of the first astronomers to study young clusters using photometric photometry. She was also the first woman to graduate in science from Istanbul University.

Hedy Lamarr

(1913-2000)

Sexy movie star of the 1930s and 1940s. Co-inventor of a remote-controlled, jam-proof radio communications system for the US military that was patented during WW II.

Margaret Burbidge

(1919-)

One of the first to publish that all the elements, except the very lightest, are born in stars.

1950

Olive Ann Beech

(1920-1986)

Co-founded Beech Aircraft, which she ran until her death when it was an international aerospace corporation.

Xide Xie

(1921-2000)

Banished during the Cultural Revolution, she was key to the development of solid state physics in China.

Betty Jennings, Betty Snyder, Fran Bilas, Kay McNulty, Marlyn Wescoff and Ruth Lichterman

Original programmers in 1946 of the ENIAC, the first general-purpose electronic computer. Received formal recognition of their contribution 50 years after the development of ENIAC through the Hall of Fame award from Women in Technology International.

Erna Schneider Hoover

(1926-)

Created the first computerised telephone switching machine for Bell Laboratories.

Grace Alele Williams

(1932-)

The first Nigerian woman to earn a doctorate, awarded in mathematics, she has been at the forefront of mathematical education in Africa – and was inspired by the Sputnik programme!

Roseli Ocampo-Friedmann

(1937-2005)

Apart from working in SETI, this Filipino-American microbiologist has a mountain in Antarctica named after her, for her work exploring the terraforming of Mars.

Mary Allen Wilkes

(1937-)

In 1965, she became the first person to use a computer in a private home, and was the first developer of an operating system (LAP) for the first minicomputer (LINC)

Mary Spaeth

(1940-)

Developed several inventions around laser technology, including the integral part of laser devices used to scan barcodes at cash registers.

Neta Assaf Bachall

(1942-)

Specialises in the study of the universe, helped to calculate the weight of the universe.

Bozena Czerny

(1952-)

Studies accreting black holes to look at the behaviour of and test general relativity in a strong gravitational field.

Dora Nkem Akunyili

(1954-)

A Nigerian pharmacist who has survived violence and assassination attempts for her war against deadly fake drugs.

Rose Dieng-Kuntz

(1956-2008)

A Senegalese scientist and one of the first scholars to understand the importance of the Web and to map how it would evolve, specialising in artificial intelligence and knowledge management.

Kalpna Chawla

(1962-2003)

Astronaut who perished in the Space Shuttle Columbia disaster in February 2003.

Itziar Aretxaga

(1965-)

Mexican astrophysicist with over 100 publications.

Katherine Adebola Okikiolu

(1965-)

Mathematician of Nigerian origin who works on differential geometry and operator theory.

Today

Susan Kare

Created the icons and many of the interface elements for the original Apple Macintosh in the 1980s.

Shafi Goldwasser

Two-time recipient of the Gödel Prize for research on complexity theory, cryptography and computational number theory, and the invention of zero-knowledge proofs.

Sally Floyd

Extensive research and development on the Transmission Control Protocol (often referred to as TCP/IP), one of the core protocols of the Internet Protocol Suite that enables and controls delivery of messages and data between one computer and another.

Czarina Saloma

Conducts research into the sociology of technology, with a focus on gender, looking primarily at her home country of the Philippines and neighbouring Southeast Asian states.

Sau Lan Wu

A particle physicist who was part of the team who recently (appear to have) found the Higgs Boson.

Doria Daou

One of the founders of the Spritzer Space Telescope Research programme for teachers and students and creator of the “Ask an Astronomer” video series.

Fernanda Viégas

Brazilian communications expert who has done exciting work democratising important internet communication tools for visualisation.

Irene Cruz-Gonzalez Espinosa

A Mexican astronomer, her “passion is in the delicate scientific observational work to understand galaxies, their environment and nuclear activity and star formation processes.”