Jesse Garrett Jernigan, Jr. –astrophysicist, mentor and devoted husband

Jesse Garrett Jernigan, Jr., known to all as Garrett, was born on May 17, 1950, to parents Jesse Garrett Jernigan Sr and Evelyn Smith Jernigan in Chapel Hill, North Carolina. He grew up in Raleigh, NC and graduated from Broughton High School in 1968. During his years at Broughton, he was greatly influenced by teacher Edward Blakeway, who introduced Garrett to computers and programming, culminating in a state award in the Westinghouse Talent Search. He passed away unexpectedly on May 9, 2022 in Petaluma, California.

After graduating from the California Institute of Technology with a B.S. in Physics in 1972, Garrett attended Massachusetts Institute of Technology and earned his Ph.D in Physics in 1977. Jernigan was a long-time member of the High Energy Astrophysics Division of the American Astronomical Society after joining in 1972. While at MIT, Garrett's innovations led to new algorithms for analyzing data from the Rotation Modulation Collimator on SAS-3, producing the most accurate positions of x-ray sources to date, including those in the cores of globular clusters. Those measurements formed the basis for his Ph. D. thesis, under the direction of MIT Professor George Clark. Garrett’s work on SAS-3 also led to many other noteworthy discoveries, including several cataclysmic variables, new X-ray burst sources, x-ray quasars and pulsars. Moving to California in 1981, Jernigan continued his work in High Energy Astrophysics as a Senior Fellow and later Associate Research Physicist at UC Berkeley’s Space Sciences Laboratory, where he worked until his retirement in 2011. At Berkeley, Garrett innovated in other dimensions: he invented the original binary tree algorithm for solving the N-body problem, as well as designing new hybrid Cadmium-Zinc-Telluride arrays to be used for cosmic x-ray detection. There he also contributed to the understanding of quasi-periodic oscillations in accreting systems, cooling flows in clusters of galaxies, and the nature of gamma ray bursts. Throughout his lengthy career, Jernigan was a Co-investigator on several NASA missions including the Rossi X-ray Timing Explorer, HETE-2, and the XMM-Newton Reflection Grating Spectrometer instrument. He also invented new analysis techniques including the Photon Clean Method and pioneered rapid photon Monte Carlo simulation methods with collaborator John Peterson (Purdue) for X-ray (XMC) and optical (PhoSim) data. This work has connected the physical interactions of light in telescopes directly to astronomical measurements.

Garrett has been described as a visionary who believed that everyone should have access to what technology can do to improve their lives—not simply those who can afford it. After retiring from UC Berkeley, he began volunteering at Sonoma State University (SSU, in Rohnert Park, CA), where his wife, Lynn Cominsky, is on the faculty in the Department of Physics and Astronomy. At SSU, he provided technical management and
scientific direction for several small satellites ("CubeSats") that could be built by undergraduates. The first SSU small satellite was the successful launch of T-Logo-Qube in 2013, in partnership with Prof. Bob Twiggs from Morehead State University (Kentucky). Jernigan’s work with SSU students continued through the launch of EdgeCube in 2020, and in developing prototypes for NASA’s IMAP Student Collaboration Satellite, known as 3U3 (planned for launch in 2025). The microcontroller developed for SSU’s CubeSat program became the initial hardware platform for SSU’s hands-on ninth-grade STEM curriculum “Learning by Making”, which aims to help rural high school students think, experiment, and learn how to utilize the technology that is quickly shaping the world around them. He was inspiring, stubborn, creative, and determined. Garrett firmly believed that if one could not solve a problem in three hours or less, it was best to consult an expert: and he was very often the expert consulted on many projects throughout his life. Shortly before his passing, Garrett was project scientist and creative driving force on a team that included long-time research collaborators Brian Silverman and John Doty, along with engineer Phil Jobson, that won first place in NASA’s “Honey I Shrunk The Payload” contest for a miniature x-ray spectrometer known as “Sun Slicer”. The Sun Slicer team’s work will be launched to the moon, adding to the many other pieces of his legacy that will continue on amongst the stars.

Garrett was a kind and loyal man, caring deeply not only for his beloved wife, but for his friends, students, and all his animals at the Little H-bar Ranch near Petaluma. He especially loved riding horses all over California with the Los Viajeros club, partnering with four different horses over the past 25 years: Ziggy, Beau, Blazar and Code, the first Mustang to live on Mustang Court. Garrett Jernigan is survived by his wife of 42 years, Lynn Cominsky, his brother William Richard “Rick” Jernigan in Raleigh, North Carolina, and many cousins, nephews and nieces. Garrett remained loyal to his family and home in North Carolina with yearly visits to Raleigh, Ahoskie and his grandparents 1930’s beach cottage in Nags Head. Donations in Garrett’s memory may be made to Sonoma State University, fund number (580090-QZ059-1042-QB125PI) to support the Learning by Making program.