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Author: Mr. Richard Clar
Art Technologies, United States

GIANT STEP: THE HEARTBEAT AND WORDS OF NEIL ARMSTRONG RETURNED TO THE
MOON

Abstract

Giant Step is an interdisciplinary site-specific artwork celebrating Neil Armstrong's first step on the moon. It addresses the question: Can the tools of science become the tools of art? Created simultaneously on July 21, 2019, at two locations: The Cote d'Azur Observatory's Lunar Laser-Ranging Station, high above the French Riviera on the Plateau de Calern, and the Dwingeloo Radio Observatory in The Netherlands. At 02:56:15 UTC, precisely the time of Armstrong's first step on the Moon, a powerful green laser beam, targeted the Moon from the Cote d'Azur Observatory's Lunar Laser-Ranging Station, carrying Armstrong's acclaimed words: "That's one small step for man, one giant leap for mankind" in Morse code. This was the first time in the 35-year history of the observatory that a laser beam from their location carried a message to the Apollo 11 retroreflector. At the same time, an Earth-Moon-Earth (EME), or Moonbounce, transmitted and reflected additional information about Neil Armstrong to the lunar surface from the Dwingeloo Radio Observatory. During research going into Giant Step that began in 2015, the author made an interesting and unexpected discovery in the Apollo Archives at NASA HQ; a 2-D Electrocardiogram (EKG) of Neil Armstrong's heartbeat as he took his first step on the lunar surface. Was there music in that EKG? Dr. Ryan Compton, whose specialty is the sonification of data, and who is currently employed by Google, was engaged. Utilizing the 2-D EKG, Dr. Compton created a two-minute single tone from the Armstrong EKG. This two-minute tone was then given to Roberto Miranda, Los Angeles jazz double-bassist and UCLA professor. Jazz was decided upon as its improvisation is an element that sets it apart from other forms of music. For Giant Step, Miranda recorded two improvised tracks over Compton's single EKG tone along with Neil Armstrong's acclaimed words: "That's one small step for man, one giant leap for mankind." In 2019, Dr. Compton created a heartbeat sound for Neil Armstrong's EKG. While the Apollo 11 Moon landing was a historic first for America, Neil Armstrong's setting foot on the lunar service and his words were meant for all of humankind.