

Biography of Joseph Eugene Palaia, IV

Joseph Eugene Palaia, IV was born in Philadelphia, PA on October 10, 1979. His parents, Beverly Sue Palaia and Joseph Palaia, III presently reside in his childhood home in Voorhees, NJ. Beverly is a high school art teacher in the nearby town of Gloucester City, and Joseph is a civil engineer with Greeley & Hansen Engineers in Philadelphia, PA. Joseph Palaia, IV has two younger brothers, Charles and Steven.

Joseph was raised in the towns of Sicklerville, Atco, and finally Voorhees, NJ. He showed an early interest in science and space exploration, and attended Space Camp in Huntsville, Alabama in 1991. He participated in Cub Scouts and Boy Scouts of America. Many good experiences in Boy Scout Troop 48, located in Berlin, NJ, led to an appreciation of the great outdoors and a yearn for adventure. He received the Troop 48 Walter Kowalewski Memorial Award (1997). His Boy Scout experiences culminated with attainment of the rank of Eagle Scout (1997). His Eagle Scout service project aided the local American Legion post, and he soon was selected for and attended the American Legion New Jersey Boys State (1997).

As a senior student at Eastern Regional High School in Voorhees, NJ, Joe founded a robotics team to compete in the FIRST (For Inspiration & Recognition of Science & Technology) National Robotics Competition. He recruited students from the AP Physics class, raised \$4,000 for the regional entry fee, and found a corporate sponsor who provided engineering support services and a facility in which to construct the robot. His team came in 8th out of 40 teams in the regional competition. Joseph and the team then went on to raise another \$10,000, allowing them to participate in the national competition.

Joseph was accepted to the Albert Dorman Honors College of New Jersey Institute of Technology, which provided a four year undergraduate scholarship. He attended classes at the Mt Laurel branch campus between 1998 and 2002, when he obtained his Bachelors of Science Magna Cum Laude in Electrical Engineering. He also received the Edward Bloustein Distinguished Scholarship (1998) and the New Jersey Institute of Chemists Distinguished Award (1999). During this time, Joseph continued his participation with the Eastern High School Robotics Team, serving as a mentor. He also aided in the formation of a NJIT Hybrid Electric Vehicle team.

From May 2000 through September 2002 Joseph held an internship at Advanced Energy Industries, Inc. in Voorhees, NJ. There he gained skills designing and constructing radio frequency power amplifiers. His work involved creation of a power supply for a MIT research project, the Plasmatron – plasma fuel reformer.

Joseph was married to Melissa Blom in September 2002. In October 2002, Joseph and Melissa moved to Cambridge, MA where Joseph began a research assistanceship in the MIT Plasma Science and Fusion Center. There he continued work on the Plasmatron project, providing electrical engineering support. He was accepted to the Nuclear

Engineering Department of MIT and began classes in February 2003. Joseph and Melissa moved from Cambridge to Framingham, MA in August 2003.

In Spring 2004, Joseph attended an MIT reactor design class, taught by Professor Andrew Kadak, which investigated nuclear reactors for Mars missions. He applied his interest and knowledge in Mars exploration to aid the group in their reactor designs. The group published a report of this work, "Mission to Mars: How to Get There and Back with Nuclear Energy," in the MIT Center for Advanced Nuclear Studies in September 2004. Also, Joseph and several members of the student team traveled to Washington, D.C. to present the team's findings to NASA Project Prometheus staff and Naval Reactors.

In June of 2004, Joseph joined several other scientists and engineers to engage in a pre-design study of the first permanent settlement on Mars. This effort, the Mars Homestead Project, was undertaken as part of the nonprofit Mars Foundation. Joseph served as the technical lead for the nuclear and electrical disciplines, generating and refining design concepts during the 8 month study. He also took on a leadership role, helping to shape the direction of this organization. He attended a number of space activist conferences including those of the Mars Society, the National Space Society, and the Space Frontier Foundation, presenting the results of the design study. In July 2005 he was coauthor of a paper on this work, "A Permanent Settlement on Mars: The Architecture of the Mars Homestead Project," which was published at the 35th International Conference on Environmental Systems.

In September 2005, Joseph co-founded a space commerce company, the 4Frontiers Corporation. This new company seeks to design, fund, build and operate the first permanent settlement on Mars, and to pursue in the economic development of the inner solar system. Joseph has served as Vice President of Operations and R&D for 4Frontiers since the company's inception.

In October of 2005, Joseph attended the Space Generation Congress and International Astronautical Congress in Fukuoka, Japan. There he received the Peter Diamandis Leadership Award in recognition of his contributions to the work of the Space Generation.

During the fall of 2005 and the Spring of 2006, Joseph served as a research assistant at the MIT Space Propulsion Laboratory. This work led to his thesis, entitled, "Empirical Aspects of a Mini-Helicon Plasma Thruster Experiment." Joseph was awarded a master's degree in Nuclear Science and Engineering from MIT in June, 2006.

In October of 2006, Joseph once more attended the Space Generation Congress and International Astronautical Congress, this time in Valencia, Spain.

Following graduation from MIT, Joseph became a full time employee of the 4Frontiers Corporation. Along with various other duties, he served in an organizational and leadership role during 4Frontiers' Generation II Mars Settlement Design Effort in 2006 and 2007.

In January of 2007, Joseph and Melissa relocated to Hudson, Florida.

In September of 2007, Joseph attended the Space Generation Congress and International Astronautical Congress, this time in Hyderabad, India. While there, he was awarded the Young Professionals Entrepreneurship Prize, Awarded by the Luigi Gerardo Napolitano Society and the International Astronautical Federation.

In December 2007, Joseph and Melissa moved to Holiday, Florida, where they presently reside.

In January of 2009, Joseph attended a one-week intensive course entitled, “Launching New Ventures” at Harvard Business School. This course was partially paid for as part of the Young Professional’s Entrepreneurship Prize he had won in India.

In July of 2009, Joseph served as executive officer and chief engineer for a one-month simulated Mars mission at the Flashline Mars Arctic Research Station on Devon Island in the Canadian Arctic. While there, he became the first person in history to launch and operate an Unmanned Aerial Vehicle (UAV) while wearing a simulated spacesuit. The UAV was the Maveric of Prioria Robotics (Gainesville, FL) who loaned the system to the expedition and conducted a training course prior to departure so Joseph could learn to operate it. While on Devon Island, Joseph also deployed a prototype lunar rover provided by the Omega Envoy project, a participant in the Google Lunar X PRIZE, with whom he serves as an advisor.

In September & November of 2009, Joseph traveled twice to Singapore, spending approximately one month total assisting a 4Frontiers client (Black Bay Technologies) and their client (EV Hub Singapore). There he helped to establish the first electric vehicle conversion facility in Singapore. He lead a small team that performed the first internal combustion engine to electric vehicle conversion ever performed in Singapore, converting a diesel powered Renault Kangoo to electric drive. As part of this effort, he developed training materials and conducted lectures for the client on electric vehicle topics, certifying their staff as EV conversion specialist.

While en-route to Singapore, Joseph took a few days off to visit Japan and to climb to the summit of Mt. Fuji (he reached the summit on 9/12/2009).

The end of 2009 and all of 2010 has seen intensive efforts by Joseph & his business partner Mark Homnick to develop Interspace, a space-themed attraction which leverages 4Frontiers’ knowledgebase and experience. Joseph is intimately involved in business development & financing efforts for the new venture, a spin-off of 4Frontiers called NewSpace Center, LLC.