

## **Brief Professional Biography – Martin Joseph Dudziak, PhD**

Dr. Dudziak is an accomplished scientist in both theoretical and applied areas of research. He is also an experienced manager and executive with a background in multinational technology companies, emerging ventures and incubator-accelerator partnerships, and non-profit consortium programs.

Within the scientific domains, Martin has principally concentrated his research focus upon quantum and relativistic physics, both in fundamental theory and in the applications of such to space science, and in that context especially, also applications within biology, computational science and information systems, and medicine. His current main basic research interests are in spacetime turbulence and soliton knot-like derivations of the Standard Model (a non-string approach), and within applications, the modeling of quantum entanglement and molecular networks.

In more applied science and engineering areas, Martin's work is principally in systems architecture and design and recent projects have included reconfigurable modules for spacecraft and earth-based extreme-environment structures, sensor and diagnostic networks for toxic and explosive chemicals, biopathogens and radionuclides, as well as blast-resistant structures and novel launch and low-orbit platforms.

Martin began his working career within artificial intelligence and machine learning, serving as project director for the first AI-based controller of an autonomous underwater vehicle for the US Navy. He has been a professor in physics and biomedical engineering at Virginia Commonwealth University, the Medical Center of Virginia, and several other academic and research institutions in the USA, EU and Russia. As a senior scientist at ST Microelectronics, he led the development of the first neural network microcontroller and several applications of statistical and neural learning systems within parallel processing devices and networks. At Battelle, he developed predictive expert systems for missile and rocketry applications. At Intel Corporation he served as a group manager and scientist for pioneering projects in machine learning, nanoscale processors, and MEMS-based mass spectroscopy and chemical sensing. At Silicon Dominion, he pioneered R&D in applying multimedia streaming and artificial intelligence to remote sensing, satellites, and group laboratory experiments; these were prototypes for future internet-of-things and social network systems. Within the companies that comprise The Tetrad Group, Martin has been instrumental in the introduction of multiple-agent chemical, biological, and radionuclide sensor and countermeasure designs including applications for drones and other autonomous robotic devices, with a focus upon the use of such technology for orbital, interplanetary and especially space-based solar power and mining applications.

Within his business development and investment career, Martin began charting his path in the 1990's and he has an accomplished track record including successful entrepreneurial ventures, acquisitions, company sales and joint ventures, including Silicon Dominion, Modis Corp., Brain Mountain, TetraDyn. He is co-founder of The TETRAD Group, a private portfolio management of scientific and technical companies in biomedical, energy and space-related technology fields.

Presently Dr. Dudziak resides and works in Ann Arbor, Michigan and on the West Coast. He has affiliations and appointments also with institutions in China, France and Russia.

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