Professional Biography – Martin Joseph Dudziak, PhD

Martin is a co-founder and director of MIRNOVA Foundation and Academy. He is an accomplished scientist in both theoretical and applied areas of research as well as a developer and manager of programs and projects in "STEM" disciplines. He has served in capacities of senior executive management and as a consultant to corporations and institutions in USA, EU, Russia and Asian countries. He has a unique background in multinational joint research and product development, emerging ventures, incubator-accelerator partnerships. Martin has a strong lifelong history of work with non-profit consortium programs that integrate education, research, communications and business development.

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 robot. 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 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 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 sciences. Within those contexts especially, his work has spanned theory plus application within computational science and information systems (particularly synthetic intelligence (AI) and machine learning) and information physics within biology and medicine (predictive analytics and pattern recognition). In his work Martin has strongly focused upon integration of innovative research with practical applications demonstrating commercial, social and financial value.

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.

Within social, educational and humanitarian domains, Martin has combined "STEM" with corporate responsibility programs and ventures including Lincos Project (MIT, Intel), Futures Gateway (Russia and USA), S.H.A.K.T.I. Warriors (elementary schools and disadvantaged, disenfranchised youth), and other projects involving universities, private foundations, and corporations worldwide.

Martin's current main scientific research interests are in areas relevant to turbulence (micro-scale and aerodynamics), quantum entanglement and spacetime fundamentals, and within applications, the quantum computing and novel algorithms for communication and information security.

In more applied science and engineering areas, Martin's work spans systems architecture and design as well as software engineering and programming. 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 completed university programs at Colgate University, Johns Hopkins University, and Union Institute and University, with a doctoral program that incorporated studies and dissertation advisors from Georgia Institute of Technology, University of London, and Oxford University, with a doctorate is in theoretical and computational physics.

Presently Dr. Dudziak resides with his family and works in Moscow, Russia, and also from homes in USA and France.

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