MARTIN J. DUDZIAK, PhD

Martin Dudziak is a scientist who has spent his career transforming abstract theory and concrete practice into synergetic solutions for emergent critical problems facing our world in the 21st century. He has worked in multidisciplinary, polymath fashion spanning several closely related fields, principally in medicine and public health as well as in domains of defense, intelligence, security, and energy.

Martin's professional career includes research and management positions within both basic and applied research and also senior-level roles in business and project development. He elected to work in a diverse group of multinational private and public companies and institutions in order to gain the experience necessary to bring together people as well as scientific methods and technologies. These institutions include: Battelle Memorial Institute and Laboratories, Martin-Marietta Corp., SGS Thompson (now ST Microelectronics), Radford University, Virginia Commonwealth University (Medical College of Virginia), Silicon Dominion Computing, Inc., MODIS Corporation, Intel Corporation, and TETRADYN (also known as TETRAD Dynamics; formerly TETRAD Technologies), where Martin now serves in the capacity of Executive Chairman and also actively as Chief Scientist.

Among Dr. Dudziak's achievements have been specific applied physics and engineering systems for some of the first autonomous underwater vehicles used by the US Navy, introduction of artificial intelligence algorithms into intelligence community databases focusing upon foreign technology development and strategic resources, and serious contributions in the development of automated and human-intensive methods for counterterrorism in the chemical, biological and nuclear WMD arena. However, Martin's primary focus has been upon the study and application of quantum theory and biophysical models to problems in medicine and the health sciences. Beginning with his PhD program, studying under David Finkelstein, David Bohm and Basil Hiley, he has worked intensively on developing theoretical and practical foundations for the use of nonlinear and complex systems, including quantum networks and topological models. For nearly two decades he has applied these heretofore abstract and speculative models into application for early detection, warning, diagnosis, response and treatment, including physical sensor designs and system architectures, for low-probability and low-quantity indicators of chemical, biopathogen (e.g. transmissible infectious diseases), and other threats to diversified population groups.

Among Martin's inventions and designs are:

Nomad Eyes (distributed, chem-bio-threat focused, network for detection, recognition, assessment, alert, and recommendations, geared for civilian populations in conjunction with local and regional/national authorities, drawing upon work on USPS Anthrax Attack Response and Remediation)

RedBioNet (focus on Biothreat detection in wildlife and the rural/uninhabited environment, a type of "DEWS" for biothreats, employing both sensor units and conversational, ad hoc information gathering from local inhabitants, based in part upon RODS model - Rapid Outbreak Detection System)

EcOasis PodLab (modular, reconfigurable trailer/container-based facility with emergency water filtration, multiple fault-tolerant electrical power generation, health monitoring station, chemical and pathogen analytics, and satellite-based internet communications)

Environmental health and safety analytical laboratory design and management, including mobile labs and informatics between sites, conducted mainly in petrochem industry sector

BioProt (analysis, surface bioprotection treatment, monitoring, and training for preventive measures against a variety of contact/exchange-transmissible pathogens including salmonella, e.coli, MRSA, VRE)

HealthNVest (disease management and personal wellness development and social networking, initially designed for COPD and diabetes, for Anthem-Wellpoint)

CUBIT (community-oriented rapid-response for biothreat validation, intervention and treatment coordination, designed using H5N1 as a primary case study)

ECLEAR Kit (personal/family oriented biosafety and health monitoring, included in a compact, light, efficient, sensible backpack with survival and sustenance gear)

GIS/GPS-enabled mobile health monitoring including hydration and antioxidant (oxidative stress) monitoring for field operations such as forest fires and emergency relief operations, as well as for sports and military applications

CommonHealthNet (iMedNet) (probably the world's first web-based telemedicine network and early social community, dating to 1994, as a project linking American medical professionals and students (MCV) with mainly former-Soviet medical professionals; later variant systems: FuturesGateway and Saño y Salvo)

Medicine for Humanity (assisted non-profit gynecology group headed by Leo Lagasse with a mobile, robust telemedicine capability to assist field medical staff in obtaining expert analysis for earlier-stage cervical cancer detection)

Martin received his bachelor's degree from Colgate University, his master's from Johns Hopkins Univ., and his doctorate (PhD in theoretical and computational physics) from The Union Institute and University. With over 100 publications including many peer-reviewed, Martin has been an active presenter in conferences, workshops and training programs internationally and also online. He attributes his creativity and success to a very large number of teachers, mentors, colleagues, former employers, his parents, his wife, his children, and the blessings of a life where adversity and "koan"-intensive problems have truly been the "mother of invention."