



Martin Joseph Dudziak PhD

martinjoseph@tdyn.org martin@instinnovstudy.org martin.dudziak@gmail.com (alternate)
+1 (202) 415-7295 (mobile, SMS, Viber) (msgs (505) 926-1399) martindudziak(Skype)

What I provide

- Solution of critical, costly problems that others seem unable to do
- Being the critical, essential bridge between managing stakeholders and some important technical and operational resources, tools, and solutions
- Showing top management and stakeholders how to avoid impending problems that can be deadly because the problems come from competitors, opponents and enemies that are already thinking way ahead of current defenses
- and my work and prowess is not only within the sphere of cybersecurity and information systems.

Selected Long-Term Research Projects and Accomplishments

i3DAT (mathematics and models for imaging and 3D control and stabilization in applications for “intelligent agents.”)

PBC (AI-based learning system; modification of PALLAS (artificial intelligence logics) and HORUS (knowledge acquisition))

PALLAS (fault-tolerant network based upon P2P botnet architecture; dynamic community of parallel cooperative AI agents, for detection and characterization of asymmetric anomalies and cyberthreats, focused upon medical diagnostics, pandemic prevention, behavior forecasting, insider-threat detection, institutional critical infrastructure protection)

CUBIT and CRAIDO (community/corporate-centric response for threat validation, intervention and treatment coordination)

Nomad Eyes (threat identification, forecast and elimination; network for detection, recognition, assessment, and response)

Formal Higher Education

§ BA (high honors), dual-major (Philosophy+Physics), Colgate University, Hamilton, NY

§ Postgrad program in computer science at UCSB and UCLA, Los Angeles, CA

§ MA, Philosophy of Physics (concentration: quantum logics) Johns Hopkins University, Baltimore, MD

§ PhD, Theoretical and Computational Physics, Union Institute and University, Cincinnati, OH (1993)
“Quantum Processes and Dynamic Networks in Physical and Biological Systems”
(doctoral advisors: D. Finkelstein*, D. Bohm, B. Hiley*, R. Penrose, K. Sharpe*, J. Crain*)

Formal Employment Positions

§ 2016 - Present: Specialist, Independent Management and Technology Operations and Services (IMTOPS)

§ 2006 - Present: Fellow, Institute for Innovative Study (IIS)

§ 2003 - 2015: Research Scientist, TETRADYN Ltd. (TETRAD Group)

§ 2001 - 2015: Visiting/Adjunct Professor, (various institutions, part-time: MSU; UCR; U-Pitt; UT; VU; VT; KPI)

§ 2000 - 2003: Group Manager and Research Lead, Intel Corporation (USA, Costa Rica, Russia)

§ 1996 - 2001: Director of R&D (Co-Founder), Silicon Dominion Corporation, Richmond, VA

§ 1993 - 1998: Assistant/Associate Professor, Physics and Biomedical Engineering (dual appointments), Virginia Commonwealth University (Medical College of Virginia), Richmond, VA

§ 1988 - 1993: Senior Scientist, Special Projects, SGS-THOMSON Microelectronics (now ST.com), Baltimore MD

§ 1985 - 88: Senior Engineer / Project Manager, Martin Marietta Aerospace, Baltimore MD

§ 1983 - 85: Research Scientist, Artificial Intelligence Group, Battelle Labs, Columbus OH



Selected Financial-Sector Projects (conducted as a consultant to special institutions)

- Mortgage-backed securities and MBS-related derivatives, trend-spotting and forecasting with neural network and fuzzy logic methods, Crestar Bank (later Sun Trust)
- Interest rate modeling, Wheat First Securities (later First Union)
- Multi-processing and parallel processing algorithm assessment and training, Federal Reserve Bank
- Evaluator of companies seeking VC-level investment - for Intel Capital (while @ Intel Corp.), IFC, EBRD (while in Russia) – focus on Latin American and Russian companies
- Anomaly detection and tracking, financial fraud and forensic accounting, Washington, DC

Selected Basic/Applied Publications and Invited Presentations

- Mobile Early Warning, Intervention and Public Health Response to Nuclear Terrorist Actions, 3rd Int'l Conf. on Radiation Countermeasures, St. Petersburg, Russia, 10/04
- I³BAT and Nomad Eyes - Countermeasures of Sensing and Preventive Response, European Symposium on Counterterrorism Response, Berlin, Germany, 12/04
- Applying Geospatial Representation and Forecasting Models for Improving Chem-Bio-Rad Defense in Battlefield and Counterterrorism Field Operations, Human System Interfaces (HSIS), Arlington, VA, 6/05
- Asymmetric Approaches to Anomaly Analysis in Medicine and Biodefense (preprint; talk given at Center for Biosecurity, UPMC, Baltimore, 7/05)
- Complementing Mutual Information Techniques in Deformable Registration Processing for Clinical Applications, UPCI, 8/05
- A Mutual Information Approach to Developing Reasonable-Likelihood Associations and Correlations between Asymmetric Events and Anomalies, CSIS, 10/05
- A Mechanism for Detecting Trigger Points and Irreversibility Thresholds in Shock and Trauma for Catastrophic Events, MMVR-DARPA, Long Beach, 1/06
- Integration of Biodefense with Public Health and Preventive Medicine (Invited Workshop), MMVR-DARPA, 1/06
- Evolutionary Detection & Prevention of Emergent Nonlinear Processes (Invited), CBRNE Countermeasures, Paris, 9/06
- Connecting the Dots to Locate & Intercept Terrorist Operations & Operatives (Invited), 2nd CMMC, WashDC, 10/06
- Topo-Cyto-Dynamics, ASMB, Baltimore, 2007
- Life-Saving Technologies Critical to Improving Speed and Scope of Response to Mass-Population Emergency Events and Pandemics, 17th World Conference on Disaster Management, Toronto, CA, 7/07
- Addressing Recognized Potential Gaps in Epidemiological First-Line Early Warning Methodologies (preprint, 2008)
- Rapid Deployment of On-Site Analysis and Response to Critical Chem-Bio Emergencies, Pittcon Courses (also four conference papers on CBRN trace-detection and forecasting), Chicago, IL, 3/09
- CUBIT - a protocol and methods to high-population-impact rapid-transmission biothreats (Invited), CDC, 7/09
- CRAIDO and MADIT – Mutation Anomaly Detection and Tracking, Race for Resilience, Washington, DC, 8/09
- Technologies to support, enhance and protect social networking freedoms during periods of social unrest and political disruption (ISCES Conference, Kuala Lumpur, Malaysia, 6/11)
- Effective, Economical, Adaptive Countermeasures to Innovative & Increased Risks from CBR Disasters, ASA, 143, 12/11
- Compass Rose: Navigating the Non-Linear World (2016)
- Penetrating the Hard, Invisible, Untouchable and Intractable – realistic parallel approaches in Quantum Computing (*2014)
- Evaluating Products Earlier with More Realistic and Accurate Prospects for Market Acceptance and Value (*2014)
- ANLINA-MUTTI – Assessment of Critical Problems that Quantum Computers and Human Ingenuity May Solve (*2014)
- PARDA - Rationale for a New Program of Investigating, Modeling and Predicting Hard-to-Observe and Deliberately-Concealed Sequences of Events (*2014)
- Quantum Computing, Viral Outbreaks and Needles in Haystacks (Dupont Summit, Dec. 2014)
- PALLAS and METI-NETI – A Class of Hybrid Algorithms for Optimizing Outcomes in High-Risk Dynamical Problems characterized by Variable Levels of Uncertainty among Key Parameters (*2015)
- Quantum Computing and Synthetic Intelligence Requires a Biologically Based Fractal-Recursive Architecture (*2015)
- Directed controllable hyper-turbulence as a countermeasure technology for neutralization of airborne threats (*2016)
- SELDON Prediction Engine (*2016)
- ExITE Exchange of International Technology Entrepreneurship program development and its first-phase implementations in Russia and Eurasia, 2014-2016 (*Dec. 2016)

Additional publication, presentation and preprint information - available upon request.

Selected Recent Abstracts are below



Special Invited Lectureships and Appointments

1991 - 1993 Center for Brain Research and Information Sciences, (jointly) Radford University and Virginia Tech
 1992 - 1996 Budker Institute of Nuclear Physics, Novosibirsk
 1994 - 1997 Joint Institute of Nuclear Research, Dubna
 1995, 2014 Bogolyubov Institute of Theoretical Physics, Kiev
 1997 Eotvos Technical University, Budapest
 1998-2004, 2016 Adjunct/Visiting Faculty, Moscow State University
 2001, 2014 Kiev National University, Kiev
 2001-2002 Adjunct Faculty, Centro Nacional de Alta Tecnologia, San Jose, Costa Rica
 2005 Univ. of Pittsburgh Cancer Institute
 2006-2007 Interim Director, Loudermilk Institute of Sustainability
 2009 – 2011, Fellow, Center for Advanced Defense Studies, Washington, DC
 2009-2011, Vanderbilt University Medical Center
 2009-2012, Advisory consultant, CDC NBAS (National Biothreat Advisory Subcommittee)
 2009 – present, Advisory Board, Society for Digital Information and Wireless Communications
 2016 – Kazan Federal State Univ., Krasnodar Federal State Univ., Vladivostok Federal State Univ., Korea Institute for Advanced Science

Selected Corporate and Government Agency Consulting/Contract Work

ARA	Exxon-Mobil	SAIC
Anthem-Wellpoint	Federal Reserve Bank	Schlumberger
BAE	GE	Solutia
Bloomberg	Goldman Sachs	ST Microelectronics
Boeing	Intel	Sberbank
BP	Interpol	SunTrust Bank
Capital One	KPMG	Trigon
Credit Suisse	KLA-Tencor	UN
DARPA	Merck	US Dept. of Defense
DHS	MITRE	US Dept. of Justice
DIA	Morgan Stanley	US Treasury
Deloitte	Northrop-Grumman	Vnestorgbank
Deutsche Bank	Pfizer	

Further details on projects and duties, assignments, technical writing and proposal development are available upon request.

Personal Contact Data

Email: martinjd@instinnovstudy.org (Alternates: martinjoseph@tdyn.org or martinjd@tetradyn.com)

Skype: [martindudziak](https://www.skype.com/user/martindudziak)

Mobile: (202) 415-7295 (also SMS, Viber, WhatsApp)

Google Voice: (505) 926-1399

