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Key Strengths Strategic planning, project coordination; technical analysis, integration, and implementation

Personalized-Precision-Public Healthcare and Safety	Internet-of-Things and Cloud-Computing
Intelligent Telemedicine and Remote Services	Wearable and Embedded Devices and Systems
Design, Introduction, Adaptation of New Technologies	Sensing, Monitoring and Knowledge Acquisition

Professional Experience

§ 2004 - 2015: Chief Scientist, TetraDyn Ltd. (formerly Tetrad Technologies Group, Inc.)

iQs (IntelSphere) project, focused upon healthcare and security applications – integration of multiple user-apps and server-side (cloud) resources for intelligent tracking, contacting, monitoring (ongoing projects, including InTeleMed, a telemedicine and customer-service suite of applications focused upon hospital networks and public health systems including USA, EU and India.

Koins, a class of wearable/carry-able small devices that communicate with and perform control functions with phones, tablets, watches, fit-bits, and other mobile or stationary consumer computing devices. Multiple classes of Koin devices provide special features for sensing and/or memory and power, with wi-fi, Bluetooth, NFC, RFID and physical connectivity.

GEMIS - Global Epigenetic Medical Information Synthesis – international program in personalized, demographic and multi-cultural-national health informatics. Integrated knowledge bases including established and emerging genomics, proteomics and epidemiological tracking and forecasting systems, incorporating distributed grid computing and intelligent-agent technologies employing the open IoT ("Internet of Things") - strong utilization of personal mobile and wearable devices and public networks.

Other Joint-Venture and funded R&D projects include:
Wearable systems for chemical, biological, radioactive and explosives sensing, integrated with smartphones and other devices.
Fashion-wear sensor-actuator for cosmetic and insect-repellent application.
Consultation and contract list (partial): Apple, BP, BASF, Boeing, Brookings, CDC, DHS, DTRA, EUPHA, Exxon-Mobil, IBM, Intel, JHU, Mt. Sinai, NYU, P&G, SAIC, UN, USMC, US Navy, Vanderbilt, VCU, WHO

Designed and implemented intelligent control, sensing, imaging and actuator response, principally embedded, wearable, wireless modular architectures. Projects include: **CEBIT** (Chemical-Explosives-Biological Identification and Tracking), **Nomad Eyes** (distributed situation awareness, early warning and response network), **CUBIT** (Coordinated Unified Biothreat Intervention and Treatment). Other collaborative sensor work has involved nucleic acid amplification techniques (PCR) and immuno-assay with optical waveguides.

§ 2000 - 2004: Group Manager and Research Lead, Intel Corporation (USA, Costa Rica, Russia)

Design, prototyping, and field/market testing in US, Latin America, and Europe for healthcare-related tablets and home-device (TV, theater) networks, automobiles, and wearables. "Skunkworks" type prototyping of camera and video devices and a specific biothreat alert apparatus.

Responsible for consortium-based research activity with regional (Costa Rica and Latin America) scientific institutions (CENAT, FUNDES, LANAMME) as part of corporate new business development. Assisted as analyst/adviser for Intel Capital VC investment in Latin American and Russian enterprises into which Intel had stakes or was reviewing for potential investments.

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

Wearable systems comparable to Google Glasses for DARPA and US Dept. of Defense. Mobile, wearable wireless (multi-protocol) architecture, software, hardware for environmental and health applications. High-speed broadband streaming applications including vMessaging and ePresents – pioneering first-case systems of what later became social networks as they evolved in the 2000s.

Directed development efforts of startup R&D company (with a twelve-person offshore tech team; Russia and Eastern Europe) producing: Internet-based research and research-collaboration tools. Products included Open Stream Media and Open Net Tool Suite (medical and public health oriented software and networks), and MODE (magneto-optics-based sensing and measurement). MEMS-based molecular sensing R&D led to platform of molecular-scale pathogen detectors.

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

Designed and implemented world's first functional international telemedicine network for use between medical practitioners and providers in several Eurasian countries, as well as a dedicated telemedicine platform for use by medical teams providing specialty (cancer treatment) and emergency services in remote and problematic areas of the world ("Medicine for Humanity").

Founded and directed Molecular Engineering and Biocomputing Center (MEBC lab). Implemented a pioneering internet-based telemedicine information resource and medical informatics network linking U.S. hospitals & companies with foreign institutions.

§ 1988 - 1993: Senior Scientist, Special Projects, SGS-THOMSON Microelectronics (now ST.com), Baltimore MD (Concurrent 1991-1992: Visiting Faculty, VA Tech & Radford Univ.)
Introduced use of AFM and STM for defect and fault analysis. Designed prototype development of real-time parallel processing and also a pattern recognition (neural net) processor chip for object recognition and microcontrol. One focal area was in addressing error tracking and correction within very large parallel systems. Core neural chip was later applied to handwritten character recognition. Led and served on team and task group for prototyping, training on new microprocessor and image processing devices. Established corporate-university joint research project for neuro/cardio medical signal processing including research in brain hologram and quantum biology models.

Select Relevant Projects and Engagements

BioProt (analysis, surface bioprotection treatment, monitoring, and training of workers, students, general-public, for preventive measures against a variety of contact/exchange-transmissible pathogens; expanded to collaboration with a clinical team that has developed superior bioprotection for in-body post-op bioprotection re: orthopedic surgery and implant devices/procedures)
Data acquisition and collection, sampling, analytics, verification, statistics, visualization and chem treatment, clinical research and trials planning and management

CUBIT, CRAIDO and Race-to-Resilience (community-centric rapid-response including modular mobile system for biothreat validation, intervention and treatment coordination; primary case study for H5N1, expanded for H1N1 and H7N9, with emphasis on mutation detection & tracking, epidemiological monitoring, social behavior analysis supporting social resilience)
Real-time data acquisition, bioinformatics modeling and testing, web-based CMS, DBMS
Laboratory research, program management, agency/sponsor interfacing and presentation

CommonHealthNet (iMedNet) (one of the first web-based telemedicine networks and early social network communities, linking American medical professionals and students with disadvantaged-nation medical providers; later variants: FuturesGateway, Saño y Salvo, and Medicine for Humanity field gynecology clinics)
Web-based interactive CMS and DBMS with image and video libraries and notification system

Nomad Eyes (chem-bio-rad-threat focused network for detection, recognition, assessment, alert, and response, geared for civilian populations, adapted to influenza and food/water-borne epidemics- both home/institutional use; stochastic distribution, wireless and cellular devices; redesigned and upgraded for functionality with generic smartphones and tablets)
(and closely coupled)
RedBioNet (focus on early-warning biothreat detection in wildlife and rural/uninhabited environments, employing distributed sensor arrays and mixed-media information gathering from local including public sources)
Microsensors, wireless communications, data acquisition, AI, mobile networks, sensor interfaces, and info-security

Relevant Computing Technologies (Direct and Management of Projects and Teams)

Yii and related HTML5, Responsive-Web Environments
PhoneGap, AppsGeyser and related mobile-app generating platforms for Android and iOS

Agile and Scrum Methodologies for Project/Team Management

(alphabetical order of languages and programming environments)
C, C++, Clojure, Common Lisp, Java, Javascript, Matlab, Mathematica, OCCAM, Parallel C, PHP, Python, Scala, SQL

Additional Technical, Management, Marketing-related Data
Including papers published, presentations, courses, workshops, project specifics, international experience, grants, references: available in full CV and supportive documents

Formal Higher Education

§ BA (high honors), dual-major (Philos/Phys), 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
"Quantum Processes and Dynamic Networks in Physical and Biological Systems"