

Director of Engineering – David Vineyard



PROFESSIONAL SUMMARY

Over twenty-five years of broad based technical development and project managerial experience in DoD, DHS, ITS, and commercial software applications. Has led numerous teams in the design and development of advanced software architectures and applications coupled with complex information management and analysis capabilities. Proven abilities in project planning, software development, system architecture, systems integration, technical writing, customer relations, and team building / leadership.

EDUCATION

Bachelor of Science – Computer Science – University of Utah – 1985

EMPLOYMENT SUMMARY

Mid-2008 to Current – **Transport Data Systems** – Director of Engineering

Responsibilities include requirements and system analysis, software design and development, applications testing, configuration management, and support of corporate R&D initiatives.

For the Bay Area Transit Authority (BATA) toll system enforcement project, developed a real-time component that interfaced with the Lane Controller to monitor vehicle sequencing and determine the front and rear camera trigger events. The sequencing functions considered sensor degrade states and adjusted the vehicle transition logic appropriately to ensure triggering operations were maintained.

2005 to Mid-2008 – **Decision Sciences Corporation** – Director of S/W Engineering

Built a team of software engineers and guided the evolution of corporate software methods and development standards. Work closely with program managers in meeting project milestones with the appropriate software resources and priorities. Provide technology roadmap vision and support in establishing relationships with partners that align with the corporate strategy. Support business development and marketing initiatives including requirements analysis and proposals.

Muon Tomography Nuclear Detection Project. Worked jointly with Los Alamos National Lab in the development of a full-scale sensor that is capable of the passive detection of nuclear materials in cargo containers and vehicles. The system software

interfaces with a large array of electronics components and employs high-performance physics algorithms to derive spatial and statistical estimations of the scanned materials. Provided software architectural direction and software application component development using C++, Java, and advanced APIs.

DHS / ITS Distributed Smart Sensor Initiative. Managed a team of software engineers in the specification, system architecture, and prototype development of a highly distributed sensor management system. System design incorporated multiple tiers of data fusion, data mining, sensor data analytics / reasoning, and next-generation human control interfaces.

2002 to 2005 – **Noesis, Inc.** – **Principle** Software Engineer / Project Manager

Technical lead of a software engineering team focused on applications system development and advanced technology integration for DoD customers. Responsibilities include concept evolution, system architecture, software development, technology scouting, customer relations, and project management roles.

Principle Investigator, Phase I SBIR, Defense Threat Reduction Agency (DTRA). Proposed the research initiative and led a team in the investigation of employing a three-dimensional (3D) spatial display in the visualization of time varying hazard and consequence prediction data in near real-time. Developed demonstration software which was interfaced with a '3D Volumetric Display' device.

Lead Engineer, UAV Video Simulator / Training Systems. Led the design and development of a UAV payload operator training simulator system. The system provides a high-fidelity 3D visualization environment that is representative of UAV training mission scenarios and includes geo-specific 3D terrain, dynamic air/land entities, and payload control operator interfaces. Integrated the system with a C4I training system suite and data network to allow for mission integrated operations.

1989-2002 – **GreyStone Digital Technology, Inc.** – Senior Software Engineer

Investigated emerging technologies that adjunct corporate products and in-house engineering toolsets. Initiated and led forward-looking technology projects in support of corporate R&D charters and product commercialization opportunities.

Software development experience with a variety of artificial intelligence (AI) and associate system paradigms including rule-based systems, plan-and-goal engines, neural networks, and fuzzy logic. As the principle investigator for a Phase I SBIR,

developed a neural network system that analyzed historical aircraft subsystem messages in order to predict anomalous system behavior during system operations.

Developed advanced functions and modules in support of a software simulation framework. The framework incorporates extensive component-based design, 3D scene generation and management, inter-process and distributed communications, DIS/HLA interfaces, streaming video, and a rich set of simulation / geospatial utility functions. Developed 3D graphics modules using C++ and OpenGL as well as high-level graphics APIs; Performer and Vega. Developed voice recognition modules that were integrated with simulation applications in order to provide operator control.

1985-1989 – **Titan Systems Corporation** – Software Engineer

Software development and knowledge engineering roles on the Pilot's Associate program (Lockheed Martin / DARPA). Supported the development of mission support and tactical situation assessment software modules which incorporated the algorithms, rule sets, and meta-data necessary to analyze and predict threat intent, threat priority, and aircraft susceptibility.

TECHNICAL SKILLS:

Operating Systems: Windows XP/NT/2000, Linux, UNIX, IRIX
Programming Languages: C++, C, Java, JavaScript, XML, HTML
Graphics APIs: OpenGL, Open Scene Graph, Performer, Xith3D, Paradigm Vega
Protocols: TCP, UDP, HTTP, SOAP, SMTP, FTP, DIS, HLA, DDS
Tools: Rational Rose, MagicDraw UML, 3D Studio Max, Photoshop, PreAct (ASI), NeuralWorks (Neuralware), TerraVista Terrain Gen (Terrex)
Licenses/Registrations: Member American Association for Artificial Intelligence (AAAI), Private Pilots License

