Laurence A. Gordon

Precision Guided Marketing, LLC

**Permanent Address:** 351 Via Andalusia, Encinitas, CA 92024 **Email:** larry.gordon@gmail.com

**Summary:** I am an expert C++, object oriented architect, designer and developer specializing in mission critical embedded, real time and user interface applications. I am able to work hands-on, lead or manage teams of developers, while simultaneously training staff in the latest software development techniques. I have a proven track record of delivering the highest quality software solutions on time and on budget.

**Skills:** Solid C++ Object Oriented Development, OOA, OOD, Technical Management, GUI Application Development, Design Patterns, Embedded Systems, Real Time Systems, User Interface Design, Space Vehicles, Cryptographic Systems, Information Assurance (IA), RF and Radio devices , Java, Java Web Development, Relational Databases, Web Application Development, Software Process, Evolutionary Spiral, MIL-STD-498, SCRUM, RUP, Agile, Simulations, Computer Vision, Image Processing, Software Architecture, Control Systems, TCP/IP Network Programming, Automotive Applications, CAN bus and Computer Graphics

**Tools:** UNIX (GNU) C++, Visual C++, MFC (Microsoft Windows), Sun Workshop C++, SGI Irix C++, UML, C++ STL, VxWorks, Tornado, Mercury, Rational Rose, CoolJexx/Object Team/Tau UML, Embedded Linux, Rhapsody, Motif, Viewkit, BXPro, Perl, PHP, MySQL, ClearCase, KEIL, Razor, PVCS, SourceSafe, Versant, Continuus, CVS, SQL, RogueWave Tools.h++, 8051, PowerPC, 68xxx, AMD29K, OS/2 IBM C++ Set / Visual Age, J2EE, JSP, Hibernate, Grails, jQuery, Subversion, CVS, Git, Python, TCL, Tomcat, CANalyzer, Netbeans, Eclipse

**Experience:**

Sierra Nevada Corporation Louisville, CO 4/2014 – Present

* Consultant, Flight Software. Core member of top level Flight Software IPT for Dream Chaser Space Vehicle.
* Responsible for technical analysis and subcontract oversight of all subsystem vendors with flight software components for Dream Chaser. Participated in on-site reviews of flight software, GNC and avionics subsystems.
* Software SME to various subsystem groups. Managed integration with ULA for Atlas V LV integration.
* Developed and managed software and spacecraft domain requirements. Developed and refined flight software architecture and requirements. Developed and refined system and subsystem requirements using DOORS 9.3.
* Developed vehicle systems level FMA and FDIR processes and procedures, including FDIR algorithm design and development as implemented in flight software.
* Reviewed program level documents in areas of cost, schedule, technical feasibility and accuracy.
* Designed and refined vehicle level 1553B bus schedule. Leveraged fault-tolerant computing domain experience.
* Software POC for top level integration and program review boards.
* Developed architecture and functional/interface requirements for crew cockpit displays including HUD and MFDs. Mentored and assisted displays and controls team in areas of software engineering, C/C++ and user interface development for space vehicles.
* Researched, specified and procured software tools and technologies in support of program level IT needs (telemetry databases, vehicle signals, 1553 bus schedule, etc.) and for in-house development, testing and V&V.

FreeWave Technologies, Inc Boulder, CO 6/2012 – 2/2014

* Technical Consultant, Software and Firmware Engineering.
* Building the next generation of cryptographically secure industrial radios.
* Involved in all phases of software and system engineering from low level coding (assembler, C, C++) to lifecycle support of existing products and development of new products, from inception through high rate production.
* For a period of nearly a year, singlehandedly supported software for all currently sold FreeWave radio and IP radio products. Point of contact from engineering to manufacturing for all issues related to currently sold and built products.
* Combined embedded systems at both the processor level/JTAG development as well as various flavors of embedded Linux including FreeScale HC12 assembler, git, C and C++, full network stack programming and Linux device driver development.

Service Cloud Computing, LLC Budd Lake, NJ 10/2010 – 5/2012

* Technical Management Consultant. Hands-on role leading software and technology organization in producing Cloud Computing based and Software-as-a-Service products for operational management of service industry companies.
* Responsibility of software development group in the areas of application and Cloud-based security, best practices software engineering techniques and processes and technical guidance, as well as individual and group direction. Team consisted of 12 software engineers, technical managers, software testers and customer support personnel.
* Team utilized Java and Cloud software tools and technologies including J2EE, JSP, jQuery (AJAX), Hibernate, MySQL, Grails, Tomcat, Netbeans IDE, Subversion and Redmine.

Seeo, Inc San Diego, CA 8/2011 – 12/2011

* Technical Consultant. Lead software developer for venture capital funded battery technology providing product development for vehicle and stationary-power applications. System consisted of embedded software controlling a module composed of lithium cells. Application was an integrated, embedded, real-time, low-level C, using J1939 compatible CAN communications in a modified SCRUM development process. Used KEIL toolchain and Eclipse.

Lockheed Martin Space Systems Littleton, CO 1/2011 – 7/2011

* Technical Consultant. Juno spacecraft mission to Jupiter. Performed software systems engineering, analysis and verification testing for spacecraft flight software for the NASA Juno spacecraft. Utilized spaceflight and space system domain skills, C/C++ code analysis, CVS and TCL scripting.
* Acting Flight Software Verification and Validation lead. Responsible for management and closeout of all simulation and on-target tests of flight software.
* Used Microsoft Project for project scheduling. Used DOORS scripts and technical analysis to track progress to the schedule. Successfully met project milestones for on-time delivery.
* Spacecraft was successfully launched and verified to be fully operational for 2013 Earth flyby and 2016 Jupiter orbital insertion.

Viasat, Inc Carlsbad, CA 10/2006 – 10/2010

* Technical Consultant. Core team consisted of twenty software and FPGA engineers.
* Designed and developed embedded, real-time C++ software for Cryptographic Subsystem of MIDS-JTRS, a JTRS family terminal. System was a security critical, cryptographic radio communication and network device implemented in C++ on a proprietary embedded operating system. Performed software development from low-level device driver/hardware interaction to framework, application and network processing. Used Rhapsody, DOORS and UNIX C++ tools.
* Performed identical work on KG-250X, the client’s next generation in-line network encryption (INE) product; an embedded network encryption device for secure IP traffic based on the HAIPE IS v3 protocol. The INE reused and added significant new capability to the Cryptographic Subsystem.
* Redesigned and implemented low level heap memory management system for embedded operating system.
* Developed low-level flash file drivers and software download and upgrade facility.
* Heavy utilization of C++, OO, Design Patterns, Network programming, Cryptographic design, python scripting, Information Assurance and real time software design and implementation skills.

Contracted to L-3 Ocean Systems Sylmar, CA 6/2006 – 9/2006

* Technical Consultant. Team consisted of ten engineers of varying disciplines.
* Embedded real-time software for Tethered Sonar Subsystem for Canadian Maritime Helicopter Program. System was a VME chassis avionics system with various operator displays.
* Developed GUI and real time software using C++, embedded X/Motif and Tornado for target platform of VxWorks.

Contracted to Northrop Grumman SSD Azusa, CA 1/2005 – 5/2006

* Technical Management Consultant. Team consisted of more than 20 engineers of diverse disciplines and varying levels of software and systems engineering background. Provided technical management support to senior management team. Provided mentoring and technical leadership to engineers in all aspects of systems and software engineering (from proper requirements definition to low level coding assistance)
* Developed Risk-based Evolutionary Spiral Model process implementation for System Performance and Analysis tools for support of SBIRS HEO and GEO spacecraft. Implemented (and defended) compliant CMM and CMMi level 3 processes for SBIRS spacecraft support organization.
* Lead development of application for the efficient storage and retrieval of telemetry and mission data.
* Used Microsoft Project and custom project cost estimation tools.
* Developed support software for line of sight control software of SBIRS spacecraft.

Contracted to Lockheed Martin IS&S Boulder, CO 7/2003 – 12/2004

* Software Architect, Team Lead of eight software engineers
* SBIRS High Ground Project
* Developed Ground Based Attitude Reference System for SBIRS satellites – a Spacecraft Attitude Determination system.
* Provided technical analysis for proposals, budgets and schedules for approximately seven million dollars of new work. Participated in subcontract oversight of SBIRS Ground project.
* Learned and applied knowledge of aerospace engineering (spaceflight dynamics) and real time controls (Kalman Filters, matrix mathematics).
* Developed GUI software for SGI platform using Motif and Viewkit/Builder Accessory (BX)
* Heavy utilization of UML, OO, C++ and Design Patterns and pseudo-real time software behavior.
* Management tools consisted of Microsoft Project and internally developed cost and scheduling tools.

Contracted to Northrop Grumman ES Linthicum, MD 6/2002 – 6/2003

* Software Architect. Analysis, design and implementation of real time embedded C++ software for torpedo defense.
* Heavy utilization of UML, OO, Design Patterns and real time software architecture skills
* Mercury OS Target (a distributed, multi-processor real-time platform) and VxWorks cross-compiled VC++ .NET
* Architecture, design and implementation of real-time C++ sonar track management system.
* Developed an XML C++ object persistence mechanism.
* Assisted in design and development of real-time recording and replay facility for significant amounts of Sonar data.
* Mentored staff in areas of C++, embedded and real time development, object oriented approaches to embedded systems and design patterns

Contracted to ITT Satellite Beach, FL 5/2001 – 8/2001

* Technical Consultant. Development of Range Safety Software for space launched vehicles.
* Software written in C/C++ on a PSOS embedded platform.

Contracted to Boeing Anaheim, CA 1/2000 – 8/2000

* Technical Lead, User Interface Development. Analysis, design and development of a front end GUI for the National Missile Defense Distributed Simulation. Developed using Java 2 and Swing components.
* Analysis, design and development of simulation software for National Missile Defense.
* Core of simulation was Versant object database with O-R mapping to C++ code.
* Heavy utilization of design patterns, UML, Java and Object Team/CoolJexx for a Sun Solaris 4.6 target using C++.
* Mentored engineers in using C++, OO concepts, Java, Design Patterns and UML.

Contracted to Motorola Plantation, FL 8/1999 – 12/1999

* Analysis, design and development of object oriented software for common group developing next generation embedded user interfaces for all Motorola cellular phones and radios (Synergy platform).
* Cross development under NT 4.0 using Visual C++ 6.0, Rational Rose and ClearCase.
* Mentored engineers in using C++, OO concepts, Design Patterns and UML.

Contracted to Raytheon E-Systems St. Petersburg, FL 3/1999 - 6/1999

* Technical Consultant. Analysis, design and development of object oriented software for an embedded aircraft multi-protocol transmitter. Utilized Visual C++ and Design Patterns for an embedded target running pSOS.
* Heavy utilization of C++, Design Patterns and UML.

Contracted to Boeing Mesa, AZ 6/1998 - 2/1999

* Technical lead. Gathered specifications, designed and developed front-end GUI application for Apache Longbow maintenance trainer. Assisted in development of Framework for Instructor Station for all Boeing maintenance and crew trainers. Reviewed designs and code of colleagues. Heavy utilization of Design Patterns and UML. Used Rational Rose 4.0/98, Visual C++ 5.0.
* Developed curriculum and trained engineers in using C++, OO concepts, UML and Visual C++/MFC

Contracted to Rockwell Collins Cedar Rapids, IA 2/1998 – 5/1998

* Designed and developed serial interface software for a GPS test simulator system. Developed using C++ under Sun Solaris for a PowerPC VxWorks platform using RogueWave Tools.h++.

Intelligent Medical Imaging Palm Beach Gardens, FL 4/1994 – 2/1998

* Core software developer for ten-person medical industry firm, which grew to over 100 employees, with the company attaining a $200 million valuation after an IPO process.
* Gathered specifications for and maintained system and control software through 4 major revisions. Written using IBM C++ Set for OS/2 and GCC for UNIX. Designed with OOA and OOD using Booch and OMT methodologies.
* Developed GUI applications for Micro21 system. Written using IBM C++ Set and ICLUI (OpenClass). Applications included various end user configuration editors and database interaction facilities.
* Designed and developed method for calculation of various image-processing functions related to automated microscopy. Developed framework for image processing C++ classes for computer vision.
* Designed and developed automated microscope control software using embedded AMD29200 controller with GNU C++ cross compiler. Also developed software in C for embedded 8051.
* Researched, designed and developed instrument Clinical Laboratory Information Management System interface. Designed using C++ as a multithreaded serial communication packet transfer application.

**Education:** B.S., Computer Engineering, 1993, University of Florida (Gainesville, FL)