

MARC PERILLO
Maelstrom Solutions
1 Park Drive / Suite 317
Putnam Valley, New York 10579
(845) 526-8888

SUMMARY

I have been a Director, Manager, Project Leader, or Primary Developer on products that have generated over \$250 Million in revenue for employers/clients. I have in excess of 20 years of RD&E experience primarily focused on - but not limited to - embedded / real-time environments.

FOCUS

- ➔ Software Engineering expertise throughout the project lifecycle - from Drawing-board to Specification, Design, Development, Testing, Validation and Release.
- ➔ Proven ability to evolve standards and specifications into functioning OO-based systems. Arenas have included Defense, Telecommunications, Test & Measurement, Database and Industrial Instrumentation.
- ➔ Familiarity with contemporary design practices such as Object Orientation, Agile software development and the Unified Modeling Language. Mastery of high level programming languages such as C++.
- ➔ Comprehensive Management Skills including resource allocation, prioritization, and scheduling.
- ➔ Experience building cooperative and positive relationships with customers and clients.

WORK EXPERIENCE

2003-2018	DIRECTOR	TEL-INSTRUMENT ELECTRONICS CORP, Carlstadt, NJ
1997-2006	PRINCIPAL CONSULTANT	MAELSTROM SOLUTIONS, Yonkers, NY
1994-1997	PROJECT LEADER	DESKNET SYSTEMS / FLUKE, Armonk, NY
1992-1994	SENIOR ENGINEER	INFORMATION BUILDERS INC., New York City, NY
1991-1992	PROJECT LEADER	CODENOLL TECHNOLOGY, Yonkers, NY (Stationed at NYNEX's Science and Technology Center, White Plains, NY)
1982-1990	SENIOR ENGINEER	BRAN+LUEBBE ANALYZING TECHNOLOGIES, Elmsford, NY

SPECIAL PROJECTS

Tel-Instrument Corporation: LED DEVELOPMENT OF THE WORLDS FIRST DOD AIMS CERTIFIED IFF MARK XIIA (MODE-5) RAMP TEST-SET.

- ➔ Responsible for management of staff, resource, priorities, and scheduling for \$30M Navy Test-set development contract. This also included the generation of requirements specifications, development plans, and other CDRLs. Conducted customer-site (US Navy) technical presentations of system architecture and function.
- ➔ Author of object-oriented system architecture consisting of several hundred classes the majority of which were designed with the assistance of UML design tools (class, sequence, and state diagramming).
- ➔ Reverse engineering and integration of IFF Mark-XIIA (Mode-5) communications and Cryptographic technologies provided by an outside development partner. Acted as primary technical liaison to that partner, a top 10 US Defense company.
- ➔ Initiated company-wide revamp of software development philosophy and processes. Instigated a transition from un-maintainable, non-scalable, and non-portable assembler based products to modular Object Oriented C++. Imparted an emphasis on documentation, code reusability and forward software migration paths. Introduced contemporary test and measurement concepts such as remote and web-enabled tester accessibility
- ➔ Conceived, developed and implemented "Client/Server" based Avionics "Test Engine" which would serve as a common platform for all of Tel-Instrument's next generation test-sets.
- ➔ Developed Test Suites for avionics protocols such as MARK-XIIA(MODE-5), ATCRBS, MODE-S, TCAS, MIL-ACAS, Enhanced Surveillance, ADSB, MODE-4, MODE-5, etc...
- ➔ Implemented Link-4 Automatic Carrier Landing System (ACLS) verification suite. The suite allowed for the exercising of aircraft systems including remote control of flight surfaces. The suite was further extended to test aircraft inertial navigation (CAINS) alignment function and Intercept/Vectoring. Responsible for ALL aspects of this development; specification, design, development, scheduling, customer management.

- Secure Software Development
- Migrated company target platform from a single threaded proprietary Intel 8051-based design to a scalable Off-the-Shelf SBC running an embedded 32bit real-time operating system.
- Developed DSP software using TI's Code Composer Studio to synthesize amplitude, frequency and phase modulated waveforms on a TMS320C6713 DSP. Implemented z-Transform algorithms for same.
- Assumed leadership of a time critical Windows Development after the outside consulting firm hired was unable to execute. Within 6 weeks was able to resolve multiple design oversights and the product was delivered on schedule.
- Implemented test suite for verifying operation of 406MHz Emergency Locator Transmitters (ELT/PLB). Presented users with full decode of device parameters as defined by the Cospas-Sarsat specification.

Tel-Instrument Corporation: DEVELOPED FIRST AVIONICS TEST SUITE CAPABLE OF PERFORMING FULL AIMS TRANSPONDER INSTALLATION VERIFICATION.

- Authored test suite capable of performing full DoD AIMS transponder installation verification (03-1102A/B)
- Extended existing WinCE based test set to include new suite. This entailed overcoming nearly exhausted system resources (memory, disk space, and interface bandwidth).
- Added new capabilities via inheritance and polymorphic extension of existing class structures.
- On-site aircraft testing at customer facilities at the Redstone Arsenal and in the United Kingdom.

Provided engineering services to Fluke Corporation, Everett, WA (1997-2004) developing and enhancing a variety of Telecommunications Test Equipment.

- Engineer and Technical advisor for *Fluke's* next generation of Telecommunications test tools implemented in Object Oriented C++ on the PowerPC VxWorks/Tornado II environment,
- Developed OOP device drivers for PMC Sierra's SUNI, TETRA, COMET and Q-JET chipsets.
- Designed Web-based Remote Management Interface for *Fluke's* handheld test equipment.
- Implemented ILMI (Integrated Layer Management Interface) and OAM (Operations, Administration and Maintenance) on *Fluke Corp's* handheld ATM devices.
- Supplied development support and council for integration of SVC (Switched Virtual Connections) protocol.
- Designed and implemented a suite of ATM traffic shaping algorithms used to stress, verify and diagnose ATM connections.
- Authored IP Internetwork Throughput Test for Siemens 167 based Frame Relay tester.
- Provided on-site engineering expertise to **Paragon Networks (now Carrier Access)**, Brookfield, CT (2001-2006) architecting and implementing embedded software components for their Broadband Network Access Platform
- Contributing architect of object oriented C++ class hierarchy which was used as a company standard for the abstraction of Interface/Module drivers. The design exploited inheritance and polymorphism to promote maximum code reusability and reduce time to market.
- Designed and implemented C++/OOP based subsystem responsible for the establishment and maintenance of interface diagnostic tests including Loopbacks and BERTs.
- Developed OOP based HDLC/SCC driver which utilized timeslot assigned TDM channel for data exchange between two PPC8260s.
- Primary developer of High-Availability /Redundancy core which distributed Objects and Databases between Master and Redundant CPUs.

Consultant/Technologist to ROSWELL Communications, Inc. designing low cost wire-speed Internet routers targeting the Voice over IP market.

- Specified overall embedded system software Architecture, Composition, and Function.
- Co-designed algorithms, state machine and software/firmware interface for hardware based QOS (Quality of Service) measurements.
- Authored RISC Assembler/C++ device drivers targeted for the IDT R3000 Microprocessor to support the MMC Networks PS1000 Ethernet switch fabric.

Lead Software Engineer on DeskNet's OC-3 (150 Mbps) handheld ATM Analyzer. This product was responsible for 70% of company sales in the two years following its introduction. The success of these products precipitated the company's acquisition by Fluke Corporation, Everett, WA.

- Designed Menus, Diagnostic tests, Heuristic algorithms and System core for Network Analyzer.
- Authored interrupt driven handlers which monitor and insert errors on the ATM Physical layer. These handlers interfaced with the *Transwitch* XBERT and *PMC Sierra's* SUNI chips as well as proprietary hardware.
- Implemented test algorithms for such high level diagnostic functions as IP Ping, AAL (ATM Adaptation Layer) Type determination, Cell Delay Variation Test, Cell Loss and Cell Transfer Delay.
- Implemented T1 and T3 physical layer handlers on the Intel 80251 processor. These handlers drove PMC Sierra 7345 T1XC Framer and 4341 Plesiochronous Digital Hierarchy chips.

Lead Software Engineer on ATM Diagnostic Benchtop/Laptop Analyzer. This product was based on various configurations of one or more DeskNet ATM ISA Cards.

- Architected System Kernel using embedded pre-emptive Multitasker running on the *Intel* 960 CPU.
- Developed Cell Receive and Transmit buffer management routines which interfaced with Constant/Variable Bit Rate Traffic Generation and Protocol Decode modules.

Integral member of Information Builders Critical Problem Resolution (CPR) team.

- Responsible for the Debugging of *IBI's FOCUS* 4GL (Fourth Generation Language) database product.
- Debugged code base which spanned over 100 Megabytes of source and included C/C++, ASSEMBLER, FORTRAN, and WINDOWS GUI components. Most debugging done in the absence of symbolic information due to the legacy nature of the code base.
- Developed B-trieve Database interface to FOCUS.

Principal Designer and Project Leader; NYNEX (now Verizon) Designated Manager and FDDI Concentrator Systems.

- Authored and implemented proprietary SNMP MIB extension.
- Participated in protocol definition and product specification.
- Designed and developed system kernel using Multi-Tasking Real Time Executive.
- Designed Physical Connection Management software based on FDDI Station Management (SMT) specification.

Designed and implemented Near Infrared Spectral Analysis (NIRA) Software Package under Windows. This software was a vital component of a materials analysis research instrument. This highly successful product contributed to a 40% increase in divisional sales revenue.

- Authored wide variety of statistical analysis tools which enabled customers to minimize the time required to obtain results, improve the accuracy of those results and realize a broader variety of applications for their instruments. Algorithms included Regression Analysis, Discriminant Analysis, Principal Component Analysis, etc...
- Developed data base and data handling software which allowed users to collect, store, display, graph and manipulate spectral data produced by a variety of laboratory instruments.

PROFESSIONAL TOOLS

- Microsoft Windows CE 6.0 Certified.
- C/C++ (Microsoft, GNU, Diab, Watcom, IBMcpp, Franklin, Keil, Microtech,)
- VxWorks/Tornado, ETS (Pharlap TNT), AMX, US-Software, QNX Embedded Multi-Tasking environments
- Rogue Wave Foundation Classes and Standard Template Library
- Unified Modeling Language and UML Authoring Suites such as MagicDraw.
- PPC860, PPC8260, i960, 80x86, 8051, R3000, 80251, x86 Assembler.
- FORTRAN, PASCAL, BASIC, Assembler
- DOORS Requirements Suite
- Some Texas Instrument Code Composer Studio

PROTOCOLS / DRIVERS / STACKS

- ≡ Avionics: IFF Mode-5/Mode-4 (AIMS 03-1000 and related)
- ≡ Avionics: KIV-78 / KIV-77 Crypto (AIMS 04-900 and related)
- ≡ Avionics: ATCRBS, Mode-S, ADSB 260A/B, Enhanced Surveillance.
- ≡ Avionics: Cospas-Sarsat Emergency Locator Beacon Protocols.
- ≡ Avionics: T-CAS (collision avoidance)
- ≡ Avionics: LINK-4 ACLS & SINS (Carrier Landing System and Inertial Navigation)
- ≡ Avionics: Sonobuoy.
- ≡ Avionics: Audio COMMS / SelCal.
- ≡ Avionics: MIL_ACAS (as developed by Honeywell)
- ≡ Telecom: ATM, SNMP, OAM, ILMI, TCP/IP, UDP, ICMP, SVC UNI 3.0/3.1/4.0 Signaling, Ethernet, FDDI
- ≡ Telecom: Trillium Telecommunications Stacks
- ≡ Telecom: Applied Telecom Device Drivers
- ≡ Telecom: PMC-Sierra Telecom Chip drivers (particularly COMET, SUNI, TETRA & Q-JET)

HARDWARE

- ≡ Intel/AMD 80x86, Intel 960, 8051, 80251, Vortex86.
- ≡ Siemens 167.
- ≡ Atmel ARM-9 SoC.
- ≡ ISA/PC104 Single Board Computers
- ≡ Motorola PowerPC 860/8260
- ≡ IDT RISC Microprocessors
- ≡ ATM, Ethernet, and FDDI Protocol Analyzers
- ≡ Texas Instrument TMS320C6713 DSP

EDUCATION

1980-1984 Manhattan College, Riverdale, NY.

