

- SUMMARY** Twenty years of experience in object-oriented software engineering, team-based development and distributed learning environments. Expert in object-oriented technologies, digital rights management, distance education and distributed simulation.
- Object modeling experience in UML (OMG's Unified Modeling Language), XML, IDL (CORBA's Interface Description Language), and ODL (TENA's Object Definition Language).
- Multi disciplinary background with broad and deep knowledge of software engineering and computer networking. Expansive thinker with outstanding record of accomplishments. Designed, developed and deployed technology strategy and policy within industrial and educational environments. Authored two books, one patent and many articles.
- Originated the Objective-C programming language, [Java Web Application Architecture](#), [Java Cryptographic Objects](#), [Action Learning Environment](#), the [MyBank Digital Rights Management System](#) and the [Taming the Electronic Frontier](#) distance education course. The last won the \$25,000 Paul Allen Foundation award as the best distance education course nationwide. See <http://virtualschool.edu> for further information on these projects.
- CLEARANCES** **SECRET**: issued 15 JUN 04 by Defense Security Service. NAC on 10 JUN 04.
INTERIM TOP SECRET: issued 30 DEC 2004 by Defense Security Service.
SINGLE SCOPE BACKGROUND INVESTIGATION: pending
- EDUCATION** **1975: Post-doctoral Fellow**, National Institutes of Health, Bethesda MD, and Woods Hole Oceanographic Institute, Woods Hole MA.
1973: Ph.D. Mathematical Biology (Chemistry Dept), University of Chicago.
1967: B.S. Organic Chemistry/Mathematics, Furman University, Greenville SC.
- Jan 2004- **Senior Subject Matter Expert**: SAIC, Arlington VA
- XHTML Modularization in XML-Schema Project Lessons; Technical Report for the SISO XMSF Profile Standards Working Group.
 - Assignment to subcontractor (Object Sciences; TENA Middleware development group) to aid in the development and testing of the Test & Training Enabling Architecture (TENA). TENA provides high-performance, real-time, low-latency connectivity between stateful distributed objects (SDO's) for test ranges and training simulations. Developed in C++, ODL (TENA's Object Model Definition Language), TAO (CORBA) and ACE.
 - Architectural design (DODAF+UML) of a synthetic battle space for developmental and operational testing of the Joint Tactical Radio System (JTRS). This required a gateway via which a few real JTRS radios can be tested in an operationally realistic environment with thousands of virtual radios (hardware in the loop). The virtual environment included OneSAF for operational simulation and

OPNET for virtual radio modeling, inter-connected by HLA (High-level Architecture).

- Ported the HLA/RTI-NG user test suite from Unix to Windows using Visual C++, Perl, and Clearcase.

Jun 2003-
Oct 2003

Consultant: Virtual Technology Corporation, Arlington VA

- Authored CMSE Project: Proposed organizational and technical innovations for composable military simulations based on Object-oriented Programming (Java, C++), expert system shells (JESS), explicit test cases (JUnit), Aspect-oriented Programming (AspectJ) and advanced business models for component acquisition.
- Developed prototype for assessing the syntactic and semantic composability of HLA-based simulation federates. XML/XSLT/XQUERY, Java/Eclipse, Swing, XML, XSLT and Jess.
- Developed XML/Xerces input modality in C++ to support testing of a combined software/hardware (HLA/HWIL) simulation system for a classified JDEP (Joint Defense Engineering Plant) SIAP (Single Integrated Air Picture) project.
- Training: HLA (High Level Architecture) development in C++ and Java
- Proposed Extreme programming (rapid prototyping) as a synergistic complement to traditional SEI/CMM (Capability Maturity Model).

Jan 2000 –
May 2003

Chief Scientist, Superdistribution, Inc: Fairfax VA

- Founder, member of the executive management team, lead strategist for research, design and development.
- Managed software development team. Successfully deployed the system within limited time and budget constraints. This is a cryptographically intensive, distributed revenue collection system for digital property (Eclipse/WebSphere, Java, Swing, SQL, Visual Age, UML, XML, SOAP, J2EE, JCE cryptography, CVS, Perforce, C/C++, ArgoUML, Xerces, Xalan, Tomcat, Jetty, JBoss, MySQL, Oracle, Ant, Linux, Windows, Team-centric (Agile/Extreme) Programming), SCRUM.
- Consultant to TCS (Florida telecom development company). Defined software architecture for multi-modality (voice/mouse/keyboard) switch input system (Java, Antlr, CVS).
- Consultant to The Adrenaline Group. Established Adrenaline University to introduce company mores and practices to new employees and customers (Java, Tomcat, Oracle, Linux, Windows, CVS, Ant).
- Consultant to AMS on Navy BAA Project, Software Architecture and Expert Systems-based Business Rules (Template, MQ-Series).

Sep 1993-
Dec 1998

Faculty, George Mason University, Fairfax VA

Director, M.A in Telecommunications program
Faculty, Program on Social and Organizational Learning

- Developed “Taming the Electronic Frontier” and “Advanced Object-oriented Programming” courses. Delivered the former via Internet, television, and video to Department of Defense School System teachers in Germany and Italy via

DARPA grant and StatOil (the Norwegian national oil company) in cooperation with Trondheim University. Won \$25,000 award from the Paul Allen foundation for the best distance education system nationwide (Linux, Perl, CGI).

- Led Digital Commerce Team for EDUCOM/IMS (Instructional Management Systems) project. Wrote payment services standards proposal to support interchange of courseware across institutions.
- Founded Coalition for Electronic Markets in response to an ARPA TRP solicitation. CEM is a coalition of industrial, financial, academic and governmental institutions whose goal is to deploy a usage-based revenue collection infrastructure for digital goods. Subsequently proposed a similar solution as a NIST ATP program idea submission, which was accepted as the basis of the 1994 Component-based Software solicitation. Led the development of the abbreviated and full proposals, which were accepted for funding through the semi-finalist phase.
- Consultant: Dialogos, Inc. Participated in the design of the CyberDean web-based distance learning environment for teaching object-oriented CORBA-based courses (Java, CORBA, Servlets, Tomcat).
- Consultant: GroupServe, Inc. Facilitated interaction between people- and technology-centric contributors to the design of a web-based discussion product (Java, Perl, Servlets, Tomcat).

1983-
1992

VP R&D, Stepstone Corporation, Sandy Hook, CT,
Chief Technical Officer and VP Research and Development

- Invented and performed initial development of the company's primary products, the Objective-C compiler and Software-IC libraries (C/C++, Solaris, CVS, Lex, Yacc)
- Co-founded the company based on personal resources followed by two rounds of venture capital from nationally prominent venture capitalists. Served as company's primary spokesman for object-oriented technology issues. Managed and mentored 15-person software development and testing team.
- Consultant: Philips Semiconductor Company in Eindhoven, Holland. Reviewed software reuse across Philip's worldwide silicon design/fabrication facilities.
- Consultant: SV Banken, Sweden. Participated in turnaround of severely distressed software development project.
- Consultant: IBM on the initial design of the System Object Model (SOM). SOM was ultimately adopted as part of the CORBA standard.
- Consultant: NeXT, Inc. architectural specification for the NextStep cross machine networking API.
- Gerald Weinberg Technical Leadership Workshop

1982-
1983

Schlumberger Doll Research Labs, Ridgefield CT,
Oilfield Services Research and Development Staff

1980-
1982

ITT Programming Technology Center, Stratford CT
Advanced Technology Group, Research and development in Coordination Technology and Object Technology.

1978-1980 **Hendrix Electronics**, Manchester NH
System Architect and Project Manager: Chicago Tribune Newsroom Automation Software Tools Group.

1977-1978 **TalStar Systems**, Princeton NJ
Software Architect and Development Manager: Toronto Star Newsroom Automation Project

1975-1977 **University of Chicago**, Chicago IL
Virology Oncology Laboratory Research Staff.

SKILLS **Languages:** Java, UML, C/C++, AspectJ, Jess, Perl, Ruby, Objective-C, Python, Template, UML, FORTRAN, Assembler, Eclipse, WebSphere, XML, XSLT, XQUERY, XPATH, XML-Schema, DTD, HTML, XHTML, CSS, Antlr, YACC/Lex/Bison, Rational Rose, Visual Age, Project Builder, Make, Ant
Architecture: DODAF, CORE, Visio UML, Rational Rose, Zachman
Databases: MySQL, Oracle, Sybase
Source Code Control: Subversion, Clearcase, Perforce, CVS
Libraries: J2EE, JSP, JCE, JDOM, Servlets, EJB, JDBC, AWT, Swing, Apache, Jetty, Tomcat, Ant, XALAN, XERCES, Velocity, JWAA, JCO, JBOSS, WebSphere
Methodologies: Team-centric Programming (Agile/Extreme), SCRUM, SEI, Rational, Waterfall, FEDEP
Operating Systems: TENA, HLA (High Level Architecture), Linux, Mac OS X, Mac OS 9, Windows XP/2000/NT/95.

PATENTS On-line business method and system for collecting revenue for multi granular digital products

BOOKS Superdistribution: Objects as Property on the Electronic Frontier, Addison Wesley 1996, ISBN 0201502089
Object-oriented Programming; An Evolutionary Approach, Addison Wesley 1994, ISBN 0201548348