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Current version: <http://www.edge-technical.com/esegall-resume.pdf>

SYNOPSIS

- Software Architect/Engineer, Computer System Scientist, Technical Lead.
 - Significant record of improvements to functionality, performance, reliability, usability and maintainability of complex, highly concurrent, mission-critical systems.
 - Extensive experience in a variety of domain areas including dynamic media content generation, web-enabled enterprise applications, interactive television, bank transaction systems, grid computing, real-time systems, scientific computing and medical instrumentation.
 - Demonstrated expertise in: design for functional correctness; design for flexibility and maintainability; performance analysis and optimization; parallel and distributed computation; fault-tolerant algorithms and systems; analysis of multi-threaded and multi-process systems for concurrency hazards and other synchronization issues; scientific and numerical computation; and management of full-lifecycle development processes.
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PROFESSIONAL HISTORY

Edge Technical Associates LLC <http://www.edge-technical.com> Narberth, PA 1999-2000, 2002-present

R&D Consultant, Principal Software Architect, Owner.

Responsible for leading the operation of Edge's full-service software consultancy:

- Design, develop, release and support software
- Manage development processes
- Product design and project planning: work with clients to identify and understand requirements, plan features, schedules and deliverables, etc.
- Participate with clients in technical presentations, technical reviews, negotiations, and other activities as needed.
- Corporate Training: develop curricula and teach courses on general software engineering topics (e.g. Java/OOP, software development processes, etc.) as well as specific tools (e.g. Unix, Visual Studio, Source Safe, etc.)
- SBIR grant proposal writing

Projects include:

- (For [SevenEcho LLC](#)) Responsible for system architecture, software development, and current and forward-looking product design of the Personal Media Director -- a highly scalable system that delivers dynamically personalized multimedia content.
Also:
 - Represented client through a successful technical due diligence review.
 - Developed the Personal Narrative Toolkit, a standalone version of the Personal Media Director for use by content developers.
 - Attained Microsoft ISV/Software Solutions Competency for the Personal Narrative Toolkit.
- (For *Liberate Technologies, Inc.*) Redesigned and enhanced layout engine of an Internet-over-television web browser (an embedded application that runs on digital set-top boxes) to improve display of images, tables, and text and bring it into compliance with HTML 4.01 standards.

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- "Smart building" energy technology development, including consultations, system architecture refinement, and evaluation of 3rd-party components.
- Led a multi-organizational team in development of [WebSTARR](#), a web-enabled ERP system for short-line railroads, for [IntelliTrans LLC](#):
 - Added a workflow-centric, web-based (Java+JSP) user interface to the legacy ("green-screen" AS/400 and RPG-based) STARR system.
 - Led multiple, intensive requirements engineering efforts to drive development and stage deployment.
 - Designed overall system architecture and interfaces to existing programs, database tables, EDI subsystems, and jobs.
 - Systematically improved application performance by restructuring API usage patterns and database queries.
 - Found long-standing bugs in original system and coordinated their resolution.
 - Instituted processes for source control, build/release, and change management.
 - Estimated effort, analyzed risks, designed and maintained a phased project plan, assigned resources, and managed team. Met multiple release deadlines while ensuring excellent team response to user issues.
 - Acted as liaison between the main customer ([Rail Management Corporation](#)), AS/400 developers and system operators at [Montana Rail Link](#), the original STARR system developers at the [Paducah and Louisville \(P&L\) Railway](#), and IBM Websphere/J2EE/IBM WebFacing developers at IntelliTrans.

Liberate Technologies, Inc. <http://liberate.com/> (formerly MoreCom, Inc.) 2000-2002
Senior Software Engineer, Video On Demand Server Products:

- Led integration of all video-on-demand server products with Liberate's Connect Suite product line: Integrated installation, logging, configuration and operational management of new VOD Gateway servers and server processes with Liberate platform APIs – developed compatible Java and Perl interface libraries and associated configuration and startup script templates. Integrated with existing source control, build and release processes.
- Developed multithreaded, TCP socket-based client for nCUBE asset metadata publisher protocol; developed a Java library and API that flexibly maps XML asset metadata from nCUBE, SeaChange, and other XML-based video metadata servers to VOD Gateway parameters.
- Led server development work on Vidéotron Health project, including identification and elimination of concurrency hazards in a Liberate video streamer product.
- Researched JVMs (Java Virtual Machines) for embedded systems, and taught an internal short course on this topic.
- Actively participated in Integrated Services Architecture (ISA) working group along with representatives from Time-Warner Cable, nCUBE, SeaChange, Concurrent, and other cable system operators and middleware vendors.
- Mentored junior members of engineering staff.

Sanchez Computer Associates, Inc. <http://www.sanchez.com> 1998-1999
Senior Software Engineer, Greystone Group

Database internals development for GT.M, a proprietary SMP (Symmetric Multiprocessing) parallel database engine: <http://www.sanchez-gtm.com/Product/product.htm> :

- Analyzed new replication and failover features for potential impact on system performance and business continuity, resulting in several design and implementation refinements.
- Designed and implemented ACID-safe, hard real-time transaction timeouts to safely implement controlled failover events during long transactions.
- Designed and implemented crash/recovery tests that led to the understanding and resolution of several long-standing bugs. Repair of these bugs significantly improved database recoverability after failure events.
- Identified and eliminated concurrency hazards including race conditions, livelock, and out-of design operation during "normal" system load peaks.

Villanova University <http://www.csc.vill.edu> 1996-1998
Assistant Professor, Department of Computing Sciences
and Consultant, NSF I/UCRC Center for Advanced Communication
University of Delaware <http://www.cis.udel.edu> 1995-1996
Visiting Assistant Professor, Dept. of Computer and Information Science

Activities at Villanova and Delaware include:

- Extensively revised and taught graduate courses in Distributed Systems, Object-Oriented Design and Programming, Discrete-Event Simulation and Programming Languages.
- Taught undergraduate Algorithms and Data Structures courses in C, C++ and Java.
- Led class-wide Rapid Application Development projects.
- Closely supervised many M.S. independent projects.

Carnegie Mellon University <http://www.scs.cmu.edu> 1992-1995

Position: System Scientist, School of Computer Science

Research project: "Distributed Computational System for Environmental Modeling", a National Science Foundation High-Performance Computing and Communications (HPCC) initiative Grand Challenge project:

- Parallelized the Urban-to-Regional Multiscale Airshed air quality model.
- Developed a variety of parallelization strategies for improving execution speed, making use of task and data parallelism, network-optimized communication, application-dependent data distribution, and pipelined I/O.
- Ported the model to vector supercomputers, massively parallel processors, networks of workstations, and wide-area heterogeneous combinations of these systems.
- Designed model verification methods that led to quick identification and resolution of model errors introduced during the restructuring process.
- Integrated the URM Airshed model with the Geographic and Environmental Modeling System (GEMS), a GUI database and simulation interface.
- Supervised staff and undergraduate programmers and managed tight schedules.
- Achieved the highest regional air quality model performance ever reported at that time.

PRIOR EXPERIENCE

Software, firmware, and analog & digital hardware design, including real-time signal processing, medical instrumentation, robotics, and real-time optical measurement systems.

PUBLICATIONS

Please see <http://www.edge-technical.com/esevall-publist.html>

EDUCATION

B.S.E University of Pennsylvania, Dept. of Electrical Engineering	1981
M.S. Rutgers University, Computer Science	1987
Ph.D. Rutgers University, Electrical and Computer Engineering	1993

Research: Scalable communication, fault-tolerant synchronization and programming language support for dynamic distributed systems.

SYSTEMS, LANGUAGES, TECHNOLOGIES

Programming Languages	Java / J2EE / J2ME, C, C++, XML, Macromedia Flash MX, Perl, Smalltalk, Eiffel, M/MUMPS, HTML, ADA, High-Performance FORTRAN (HPF, F90), Lisp, Pascal, Postscript, Prolog, RPG-IV, CL, and others.
Scripting, build	Bourne shell, bash, csh / tcsh, ant, make / I make, and others.
Assembly Languages	HP (Compaq/DEC) Alpha AXP, HP RISC, IBM RS6000/PowerPC, Sun SPARC, and others.
Web Application Platforms	Apache Tomcat, IBM WebSphere, and others.
Databases	MySQL, IBM DB2/400, Sanchez GT.M (Mumps) highly parallel SMP database, and others.
IDEs	NetBeans, Eclipse, Forte, Visual Studio, Visual C++, JBuilder, Visual Cafe, Flash MX, Smalltalk-80, X-Windows, etc.
OS + Platforms	Windows NT/2000/XP, SGI (Cray) T90/T3E supercomputers, Scientific Atlanta PowerTV. Single and Multi-processor UNIX systems, incl. Sun Solaris, IBM AIX, HP (Compaq/DEC) Tru64 UNIX and OpenVMS, HPUX.
Inter-process communication	TCP/IP socket-level programming, DCOM, CORBA, shared memory (various), message-passing (PVM/MPI), Linda, & others.
Source control	Perforce, CVS, Visual SourceSafe, and others.
Miscellaneous	IBM WebFacing

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