Michael P. Zeleznik, Ph.D.

Software & System Architect for Scientific & Engineering Applications

Please see my vita at SayaSystems.com/mpz

Professional Summary

I am a highly experienced software and system architect, developer, and project leader with a solid track record of achieving results. For over 30 years I have tackled increasingly complex, cross-discipline projects, and created timely, effective solutions in commercial, clinical, and academic environments. I know what it takes to turn vague, or seemingly intractable requirements into viable solutions or products. I have piloted such projects through the full software development life cycle, and have worked extensively in all phases, from research to development to documentation to customer support. As such, I have a solid understanding of the whole picture, from the 40,000-foot view down to the nuts & bolts in the trenches. A natural planner, organizer and leader, I am self-motivated and results oriented. Quickly adapting to new endeavors, I hit the ground running and rapidly make an impact. This is facilitated by my in-depth, hands-on experience in a broad range of technologies and work environments, coupled with my formal background in Computer Science, Physics, Mathematics, and Electronics.

Ph.D.	Computer Science	University of Utah	*Security design in distributed computing*
M.S.	Computer Science	University of Utah	*Networking and distributed systems*
B.S.	Physics *Math minor*	Indiana Univ. of PA	*Focus on analog & digital electronics*

Technical Strengths and Background

- Design and implementation of complex systems from low-level hardware to high-level software
- Commercial product research and development
- Product life cycle (SDLC), from specs to support
- Integrating diverse, cross-discipline requirements
- FDA software quality system controls
- Software testing methodologies
- Geographically distributed software development
- Workflows and operational processes
- Technical project leadership / management
- Research, publications, presentations
- Attention to detail, accuracy, integrity
- Object oriented / data flow / 4GL programming
- Image / signal processing and analysis
- 3D visualization / computer graphics
- Databases: relational, text, image, PACS
- Distributed computing and networking (M.S.)
- Security in distributed systems (Ph.D.)
- Web development, dynamic, database driven
- Network design, implementation, support, and troubleshooting, from LAN to WAN
- Enterprise system / network administration
- **Proven track record of working remotely from home office since 1996, including:**

HP Labs	2007 - 2010	2100+ hours	On-site just 1/2 day
Southern California Earthquake Center at USC	2007 - 2010	750+ hours	Never on-site, never met
Incorporated Research Institutions for Seismology	2007 - 2009	235+ hours	Never on-site, never met
RAHD Oncology Products	1996 - 2006	Full time	On-site once per year
NYU Medical Center & Karolinska, Sweden	1998 - 2011	3500+ hours	On-site 2 days

Employment History and Highlights

President & Founder **Chief Software/System Architect**	*Saya Systems Inc. (sayasystems.com)* *Applied Technology for Science & Engineering*	2003-NOW

- Low-level image processing, analysis, segmentation research and development for HP Labs.
- Hadoop MapReduce architecture and design for code with muliple interdependent phases for HP Labs.
- High-reliability earthquake early warning testing system for Southern California Earthquake Center (USC).
- Automated 3D visualizations of earthquake ground motion from seismic data for Univ of WA.
- Ongoing co-development of 3D volume fusion software with NYU Med Ctr and Karolinska.
- Designed and prototyped a unique High Availability Server for small business.
- Drafted and submitted software patent applications, both provisional and non-provisional.
- Created and maintain commercial dynamic web sites, specializing in high quality imaging.

Technology Development Manager	*RAHD Oncology Products (rahd.com)*	1999-2006
Chief Software/System Architect		

- Created FDA 820.30 Design Control Procedure; passed FDA inspection quickly and cleanly.
- Reduced development cycle from weeks to hours by reengineering the development environment.
- Improved alpha / beta testing and evaluation capabilities by orders of magnitude.
- Significantly improved design collaboration and problem tracking through new web based tools.
- Dramatically reduced resources needed to install, maintain, and customize product software.
- Eliminated many common user problems by developing a runtime resource management system.

Software Developer	*RAHD Oncology Products*	1995-2006
Visiting Scholar	*Univ. of Utah Medical Center, Radiation Oncology*	1995-2002

- Vaulted RAHD to next level by spearheading rapid development of 3D visualization products.
- Greatly reduced development time by establishing R&D collaboration with IBM Watson Labs.
- Created 3D volume fusion product by establishing R&D collaboration with NYU Medical Center.
- Authored / presented first publication in RTP literature to address 3D visualization accuracy.
- Developed a comprehensive software testing methodology.

Network/Unix Support Manager	*Univ. of Utah, Campus Networking, Computer Ctr.*	1994-1995
Senior Programmer	*Univ. of Utah, Campus Networking, Computer Ctr.*	1990-1995

- Actively set directions as member of campus network committee, director's cabinet, VP reviews.
- Key facilitator in installation and testing of campus FDDI network and support of Cisco routers.
- Launched first campus-wide monitoring of backbone routers, bridges, and FDDI utilization.
- Facilitated knowledge exchange, e.g., presented seminars on network management and SNMP.
- Reduced support costs as key architect in converting campus servers to homogeneous platform.
- Improved server performance through extensive performance monitoring, analysis, and tuning.

Software Consultant	*RAHD Oncology Products*	1993-1995

- Developed high profit products to import CT data from proprietary formats on disk/tape.

Assistant Project Director and	*Univ. of Utah, Computer Science, URSA Project (during project startup)*	1983-1984
Technical Lead		
Senior Programmer	*Univ. of Utah, Computer Science, URSA Project*	1983-1990

- Key player in all specification and design phases, project staffing, presentations, and reports.
- Developed the network communication system that URSA was built upon for 10 years.
- Designed the initial application-level communication protocol from which URSA evolved.
- Greatly improved developer productivity as codesigner of the software development environment.
- Reduced downtime and improved operation of Apollo workstation network by aggressive redesign.
- Spearheaded research in distributed systems and multi-level security for CIA.

Research Assistant	*Univ. of Utah Medical Center, Medical Physics*	1981-1983

- Developed a high-resolution image digitizer and precision film writer (hardware and software).
- Developed gamma correction software and procedures for color video displays and film.
- Computer Science studies; image/signal processing, graphics, distributed computing, networking.

Digital Imaging Specialist	*New York Univ. Medical Center, Radiology*	1977-1981

- Improved performance and reduced downtime and operating costs of CT systems.
- Established innovative quality control and preventive maintenance procedures.
- Spearheaded new methods to optimize image quality from film and video displays
- Served as liaison between the medical and engineering communities.
- Actively pursued research in picture archiving and communication systems (PACS).

Electronics Consultant	*Indiana Univ. of Pennsylvania*	1975-1976

- Designed and developed a real-time, digital, physiological monitoring system (Psychology Dept).
- Created and taught an electronics short-course for secondary physics teachers (Physics Dept).

Education

Ph.D.	**Computer Science**	University of Utah	*Security design in distributed computing*
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Skills (Highly Proficient)

Languages	*Applications*	*OSs & Networking*
C, C++, Make, Visual Studio	PowerPoint, Excel	Unix *(e.g., BSD, Sys5, Solaris, DU)*
Unix / Linux shells & tools	Word, Emacs	Linux *(e.g., Red Hat, Suse, Fedora)*
(e.g., sh, csh, awk, sed)	Open DX Visualization Toolset	Admin of Unix, Linux, LANs, WANs
Perl, PHP, CGI/Perl, CGI	Photoshop, ImageReady	TCP/IP, DNS, SNMP, routing ...
HTML, CSS, DOM ...	Joomla (CMS), FrontPage	Ethernet, T1, FDDI, Frame Relay ...
Javascript	Subversion, CVS, RCS	Routers *(e.g., cisco)*
SQL, MySQL	Custom IDEs (created via CVS,	Switches *(e.g., Linksys)*
OpenDX data flow nets (4GL)	RCS, Web/Unix tools, MySQL)	Protocol Analyzers *(e.g., Sniffer,*
Fortran, Basic	OnProject (project management)	*Ethereal, tcpdump)*
Debuggers *(e.g., dbx, gdb)*	LaTex, Scribe	Firewalls

Skills (Comfortable)

Languages	*Applications*	*OSs & Networking*
Java, JSP	Acrobat, Dreamweaver, Flash	Windows XP, ME, 98
XML, XSL, MVC ...	MS Project	Admin of Windows XP, ME, 98
ASP	U.S. Patent EFS / Applications	Mac OS X, MS-DOS
Visual Basic	FDA Medical Device	Network Management Tools *(e.g.,*
Python	Requirements Compliance	*SunNet Manager, HP OpenView)*
UML and methods	GUI testing tools	Hadoop MapReduce clusters
LISP, Pascal	IIS, Apache web servers	System monitoring *(e.g., Nagios)*

Skills (given my experience, I could quickly be productive with other technologies, such as)

Languages	*Applications*	*OSs & Networking*
.NET, J#, C#	IDEs *(e.g., Rational, Eclipse,*	Windows Server, Cluster Service
OO-Perl, ColdFusion	*Borland)*	High availability clusters
Oracle, other RDBMSs	MS IIS, SharePoint *(portal)*	Load sharing clusters
CMSs *(e.g., Ruby / Rails,*	Windows or Mac software	Beowulf cluster computing
Zope / Plone)	development environments	IPv6, IPSEC
Any 4GL or 5GL++	Apache OFBiz	System/network monitoring tools

Representative Publications / Presentations (10 of 47)

"Extending the CISN Earthquake Early Warning (EEW) Web Site into the CISN EEW Testing Center,"
American Geophysical Union Fall Meeting (poster session), December 15-19, 2008, San Francisco, CA, M Zeleznik, P Maechling, M Liukis, S Callaghan, M Boese, E Hauksson, G Cua, K Solanki, R Allen, D Neuhauser, M Hellweg, M Fischer, T Heaton, and T Jordan.

"Page Content Detection For The Purposes Of Achieving Accurate Cropping," Research Disclosure, November 2008, disclosed by Hewlett-Packard Company, P Reddy, J Fian, M Zeleznik

"Clinical Application of a Semiautomatic 3D Fusion Tool Where Automatic Fusion Techniques Are Difficult to Use", Third International Workshop on Biomedical Image Registration, July 2006, M Noz, G Maguire, M Zeleznik, et al.

"Method and System for High Availability Services on Multiple Servers," United States Patent Application 11/161,428 - August 3, 2005, M Zeleznik.

"A Versatile Functional-Anatomic Image Fusion Method for Volume Data Sets", Journal of Medical Systems, Vol 25 No 5, 2001, pp 297-307, M Noz, G Maguire, M Zeleznik, et al.

"3D Visualization: What Does it Mean?", presented at XII International Conf. on the Use of Computers in Radiation Therapy, May 1997, M Zeleznik. **View the slide presentation**

"Security Design in Distributed Computing Applications", Ph.D. Dissertation, University of Utah, Computer Science, December 1993, 412pp. M Zeleznik.

"Introduction to Network Management", presentations to Univ. of Utah, Computer Science networking classes and campus network managers, 1991 – 1993, M Zeleznik.

"A Portable, Network-Transparent Communication System for Message-Based Applications", presented at IEEE 6th International Conf. on Distributed Computing Systems, May 1986, M Zeleznik.

"PACS Data Base Design", SPIE Proc. Conf. on Picture Archiving and Communication Systems (PACSII), 418:287-295, May 1983, M Zeleznik, et al.

Honors / Societies

- **Phi Kappa Phi** *Honor Society* (elected in 1988)
- **Sigma Xi** *Scientific Research Society* (elected in 1987)
- **Sigma Pi Sigma** *National Physics Honor Society* (elected in 1975)
- **IEEE Computer Society**
- **ACM**
- **Society of Physics Students**

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