

# Thomas J. Smith

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## Objective

**My objective** is a senior role in technical management, chief scientist, technology consultant, or senior system architect. To provide technical leadership to business and research activities in distributed Systems Architectures, Middleware, Client/Server, and operating systems software and associated technologies. I am particularly interested in Internet and Java Technologies, including agent-based collaborative and cooperative e-business, educational, and interactive systems. A recent interest is the integration of Internet applications with hand-held (e.g., Palm) devices.

## Experience Summary

**I am** a highly motivated Computer Scientist with many years of experience in software research, design, development, and management. My qualifications include successful roles ranging from Research Scientist to Senior Software Engineer to Development Manager to Group Manager. I am a "hands on" technical manager who enjoys assembling teams of software engineers to address software design, development, and deployment. I communicate well, giving numerous presentations at conferences, customer meetings, and briefings. I also enjoy teaching Computer Science at the University level.

## Professional Highlights

- Designed and developed a business forms and documents management system. System required integration of several Internet technologies including XML, XSL, XHTML, JavaScript, Java and Java Servlet programming. The system required knowledge of Apache web server technologies, the Tomcat servlet engine, and the Cocoon document management system.
- Project manager for a \$5M project from the U.S. Department of Education. Designed and directed 5 software engineers in the development of a 3-tier Java Internet Portal for K12 educators in the 4-state region of Delaware, Maryland, New Jersey, and Pennsylvania.
- Project Manager of a group of 3 Managers and 25 software engineers in development of a common software development environment for the Department of Defense STARS program.
- Conceived and developed Requirements Management software tool to support accurate requirements traceability throughout a development project.
- Managed a group in development of a large-scale banking system in the U.K. and Prague, Czech Republic.
- Developed techniques for extracting design from legacy source code. Employed these techniques in the reengineering of a large banking system and a child welfare database system.

- Performed basic research into a number of areas, including software development techniques, user interface techniques, and Internet-based control of 3-D graphics.

## **2001 – Present**

### **Self Employed Software & Internet Technologies Consultant**

#### **Work experience**

Designed and developed a business forms and documents management system. System required elements of multiple Internet technologies including XML, XSL, XSLT, Formatted Objects (FOP), Java Servlets, JavaScript, XHTML, Apache Web server, Tomcat servlet engine, and Cocoon, a document management core system from Apache. I personally designed, programmed and integrated all of these components into the final successful system

**1999 – 2001**

**SAIC**

**Valley Forge, PA**

### **Project Manager, HUBS Education**

Manager and Chief Architect of a group performing the design and implementation of web-based education and collaboration software as part of the HUBS (Hospitals, Universities, Businesses and Schools) Information Technology initiative. I have budgetary responsibilities and direct the activities of 5 Software Engineers. This project was sponsored by a \$5M grant from the U.S. Department of Education. I directed the design of the infrastructure and middleware to support development of an Internet Portal (<http://www.hubscentral.org>) supporting teacher-centric Internet applications, Professional Development opportunities through web-accessible databases of educational materials, distance learning opportunities, and web-supported parent-teacher communication and collaboration capabilities.

The portal is implemented as a 3-tier application consisting of Web browser, Java servlet middleware and database server. The first tier uses a Web browser to allow optimum access to the system from any classroom or personal PC. HTML forms are used for user-input and the results of the database query are returned as dynamically created HTML pages. Using HTML for user-input and displaying the data lowers the requirement of the client's browser version. The Portal does not impose the requirement of a Java-enabled browser with the latest JDK patch.

The second tier is implemented with a Web server (Apache on an NT system) running Java servlets. Java servlets access the database through JDBC technology, dynamically create an HTML page with the results, and return the page to the user's Web browser.

The third tier is the back-end database server. The Portal currently uses a Sybase RDBMS although the middleware is designed to be independent of any particular database system. The Java servlets can access information in any database provided that a JDBC driver exists.

I am responsible for the introduction of PDA (Palm devices) technologies and software into the HUBS K12 classrooms. I have designed and led the development of an Internet-based educational system integrating web-based



### **Sperry/Unisys Liaison to Microelectronics and Computer Technology Corporation.**

- Liaison and technology transfer between MCC (Microelectronics and Computer Technology Corp.) and Sperry/Unisys software development groups. Introduced new software development technologies to Sperry gave presentations/demos to educate Sperry personnel in new technologies. Established receptor groups to receive and promote new technologies within the company.
- Member of Technical Staff engaged in research and development of software engineering environments.

1973 - 1984                      Sperry Univac                      Roseville, MN

#### **Manager, Software Products**

- Managed a group of 3 Supervisors and approximately 30 staff in the design, development, and support of end-user software products for the Sperry Univac 1100 computer series. Products included APL, Fortran and Cobol compilers. Managed schedules and deliveries and customer relations.

1971 - 1973                      Bell Telephone Laboratories                      Murray Hill, NJ

#### **Member Technical Staff**

- Architect and lead designer of a data management system for use by the various Bell Telephone operating companies.

1967 - 1973                      Bellcomm, Inc.                      Washington DC

#### **Member Technical Staff**

- Performed various programming and support tasks in support of the NASA Apollo program. Lead programmer for maintenance and new features for the Sperry Univac 1100 Operating System.

### **Education**

**M.S. Engineering, 2001,** University of Pennsylvania, Philadelphia, PA

**M.B.A, 1979,** University of St. Thomas St. Paul, MN

**M.S. Computer Science, 1967,** University of Iowa Iowa City, IA

**B.A. Mathematics, 1965** University of Iowa Iowa City, IA

Graduate coursework in Data structures, compiler construction, computational linguistics, and computer science theory at the University of Maryland, 1969-1972

### **Technical experience**

#### **Programming Languages**

- Internet, Java, , Python, VRML
- C++, C, APL, Fortran, Lisp, Visual Basic, Word Basic, C Shell, Bourne Shell, Korn Shell, Tk/Tcl, Cobol, ML
- Palm PDA Programming

### **Programming Systems**

- Unix: Sun OS, IRIX, Linux
- Windows 95, NT, 2000, XP, DOS
- X Window System.
- Database: SQL, Ingres, Oracle, Access.
- Palm OS 3 and greater

### **Program Design & Development**

- Structured Analysis/Structured Design, OO design, Requirements Management.
- Design recovery, Legacy software system analysis,
- Client/Server programming, sockets, http and other protocols.

### **Internet Experience**

- Languages: Java, JavaScript, HTML, XML, XSL, FO, Perl, Tk/Tcl, VRML
- Systems: e-commerce systems, Cookies, Digital Signatures, security issues.
- Apache web server

### **Publications & Awards**

Divisional Award of Merit, Paramax (Unisys Defense Systems), 1994.

Corporate Award of Merit, Paramax (Unisys Defense Systems), 1994.

“Project Nick: Meetings Augmentation and Analysis.” With [Peter Cook](#), [Clarence A. Ellis](#), [Mike Graf](#), and [Gail Rein](#), Transactions on Office Information Systems( [TOIS 5](#)(2): 132-146 )(1987)

“READS: A Requirements Engineering Tool.” Proc. IEEE International Symposium on Requirements Engineering, San Diego, CA, 1993.

“JackMOO: A prototype system for natural language avatar control”. With Jianping Shi, John P. Granieri and Norman I. Badler, University of Pennsylvania, Pacific Graphics 97, Seoul, Korea, 1997

“JackMOO: A web-based system for virtual human simulation,” With Jianping Shi, John P. Granieri and Norman I. Badler, University of Pennsylvania, 1998 International Conference on Web-Based Modeling & Simulation, San Diego, 1998.

“Smart Avatars in JackMOO”, With Jianping Shi, John P. Granieri and Norman I. Badler, University of Pennsylvania, IEEE Virtual Reality '99 Conf., Houston, TX, March, 1999