

# Viren R. Shah

## Executive Profile

Software technologist with broad experience in R&D, division and project management, consulting services, and information technology. Strong interest in assuming a lead executive role to direct and implement corporate strategic goals through the use of innovative, cutting-edge technologies.

## Experience

Sr. Technical Advisor/Principal Software Engineer 2005-Present  
Raytheon Virtual Technology Corporation, Alexandria, VA

Reported to the VP of Technology functioning as corporate technology liaison for all internal and external technology issues.

- Directed and coordinated internal strategic technology initiatives
- Developed and maintained commercial products and corporate technology roadmap
- Coordinated technology and direction across research projects
- Pursued and wrote proposals for several government-funded efforts
- Fostered technical exchange, reuse and collaboration across service groups
- As division head of internal IT, refocused the department to better align with corporate goals and business practices achieving better QoS
- Successfully led technology migration and integration efforts after acquisition by Raytheon, resulting in significantly lower costs of integration and a smooth transition

Sr. Research Associate/Program Manager 1997-2005  
Cigital, Inc., Dulles, VA

Filled several roles across a number of the company's divisions, including:

### **Program Manager**

- Managed overall direction of Cigital Labs, including tactical and strategic divisional planning
- Responsible for achieving division revenue and business goals
- Mentored senior and junior researchers and developers enhancing creativity, productivity and morale

### **Sr. Research Associate**

- Led R&D efforts on projects funded by DARPA, NASA and NIST
- Developed research ideas and wrote successful funding proposals
- Wrote papers and technical reports for publication
- Assisted in technology transfer from research prototypes to commercial products

### **Senior Consultant**

- Performed software security and software quality risk assessments for clients
- Served as software configuration management (SCM) expert
- Helped develop a practical software certification approach

### **Information Technology Liaison**

- Championed and implemented SCM practices company-wide
- Involved in planning and administration of corporate IT infrastructure

### **Research Division**

- *Principal Investigator (PI) on a project that created a security vulnerability scanner for program executables by reusing source-based pattern-detection engines. Resulted in a shorter development lifecycle and leveraged existing proprietary tool infrastructure.*
- *Project Lead (PL) and Co-PI on a \$1.8M project looking into language-based security issues with resource-constrained wireless devices. Led analysis and development efforts focused on improving and extending the current security paradigms for Java-based devices. Resulted in a suite of tools to help expose security vulnerabilities with the J2ME reference implementation.*
- *PL and Co-PI on a \$1.6M project tasked with developing an Aspect-Oriented Programming (AOP) solution for security vulnerabilities. Led a team in designing and implementing a complete system, including an aspect language and a weaver. Created comprehensive, modular solutions to address a wide range of security issues.*
- *Technical Lead on a \$2M project researching and developing a software certification pipeline for electronic commerce applications. Researched and implemented state-of-the-art techniques for the automated detection of security vulnerabilities in C code. Also developed advanced static and dynamic analysis tools for Java bytecode. Tools are currently the basis for Cigital's vulnerability detection product*

#### **Professional Services Division**

- *Subject Matter Expert in software analysis, security and reliability.*
- *Performed security risk assessment on a network storage product. Discovered and implemented security exploits on product and traced technical risks back to business impact.*
- *Member of team that created a quantitative product-oriented software certification approach for a federal government agency.*
- *Architected a SCM solution for an e-commerce client. Also planned and assisted in development group's migration from Visual Source Safe to CVS.*

#### **Information Technology**

- *Setup and maintained SCM software. Tutored and mentored coworkers on SCM usage.*
- *Instrumental in the planning and design of heterogeneous critical infrastructure servers and network. Provided continuous availability of resources and infrastructure and secure architecture, design and administration of systems running FreeBSD and Windows 2000.*

#### **Software Engineer**

1997

Visix Software, Inc., Reston, VA

*Helped develop "Vibe," a cross-platform application development environment for Java. Also worked on "Galaxy," a cross-platform class library for developing applications*

- *Developed user interface components*
- *Worked on library code for networking libraries*

#### **Research Assistant**

1994-1997

College of Computing, Georgia Institute of Technology, Atlanta, GA

*Performed research in educational technology and networking. Also designed systems to promote human learning and problem-solving based on cognitive principles.*

- *Built authoring tools that significantly reduced course content module development time*
- *Served as teaching assistant for undergraduate Artificial Intelligence course*

#### **Software Engineer**

1996

Elemental Interactive Design and Development, Atlanta, GA

*Designed and implemented cross-platform Internet and intranet tools.*

- *Designed and developed a cross-platform information visualization and presentation system with the ability to deliver information through the web*
- *Performed source control and configuration management.*

#### **Graduate Assistant/System Administrator**

1993-1994

Department of Computer Science, University of Mississippi, Oxford, MS

1992-1994

Research Institute of Pharmaceutical Sciences, University of Mississippi

Performed research in formal methods.

- Taught senior-level undergraduate Algorithms course
- Managed heterogeneous Computer Science department systems, including departmental FTP and web sites.

## Publications

### Selected Conference Proceedings

- **Viren Shah**, "Using Aspect-Oriented Programming to Address Security Concerns," *International Symposium on Software Reliability Engineering*, November 2002, Annapolis, MD.
- **Viren Shah**, "The Holy Grail of Software Quality," *International Conference on Dependable Systems and Networks (DSN 2002)*, June 2002, Bethesda, MD.
- M. Weber, **Viren Shah** and Chris Ren, "A Case Study in Detecting Software Security Vulnerabilities Using Constraint Optimization," *IEEE Workshop on Source Code Analysis and Manipulation*, November 2001, Florence, Italy.
- T.J. Walls, **Viren Shah** and Anup Ghosh, "Towards Certifying Software for Security," *Proceedings of ISACC 2000*, September 2000, Reston, VA.
- A.K. Ghosh, **Viren Shah**, and M. Schmid, "An Approach for Analyzing the Robustness of Windows NT Software," *Proceedings of the 21st National Information Systems Security Conference (NISSC98)*, October 1998, Arlington, VA.
- Carlson D., Guzdial M., Kehoe C., **Shah V.** and Stasko J. "WWW Interactive Learning Environments For Computer Science Education." *Proceedings of SIGCSE '96*, February 1996.

### Selected Workshops/Panels

- Workshop Organizer: AOSD Technology for Application-Level Security, Aspect-Oriented Software Development, Lancaster, UK, 2004.
- Panelist: Wireless Security: Vulnerabilities and Solutions, ACSAC, Las Vegas, 2002.

## Patents

- Walls, T. J., **Shah Viren** and Ghosh, Anup, "System and method for identifying and eliminating vulnerabilities in computer software applications", US Patent Number 7,284,274
- Weber M., **Shah V.** and Ren C., "Systems and methods for detecting software buffer security vulnerabilities", US Patent Number 7,302,707

## Education

<b>Ph.D. Program (Educational Technology)</b> College of Computing, Georgia Institute of Technology, Atlanta, GA	1994-1997
<b>M.S. (C.S)</b> Department of Computer Science, University of Mississippi, Oxford, MS	1994
<b>B.S.C.S.</b> Department of Computer Science, University of Mississippi, Oxford, MS	1992

## References

Available upon request