Jie Ren

http://www.ics.uci.edu/~jie

Contact Information

Office Tel: 1-949-824-2776
E-Mail: jie@ics.uci.edu
Mail: Jie Ren
               Information and Computer Sciences
               University of California, Irvine
               Irvine, CA 92697-3425

Education

1999.9-2006.1	Ph.D.	Department of Informatics, University of California, Irvine
1992.9-1995.7	M.Sc.	Department of Computer Science, Fudan University
1988.9-1992.7	B.Sc.	Department of Computer Science, Fudan University

Working Experience

2004.6-2004.9	PivX Solutions, Inc., Intern Security Researcher
2002.7-2002.9	Endeavors Technology Inc., Intern Quality Assurance Engineer
1998.9-1999.7	Department of Computer Science, Fudan University, Lecturer
1996.9-1998.8	Department of Computer Science, Fudan University, Assistant Lecturer
1995.7-1996.8	ZTE Corporation, China, Software Engineer

Skills

- An innovative researcher
- A professional programmer, mastering C++/C and Java
- A comprehensive background on computer science, familiar with basic algorithms, data structures, and database concepts.
- A sound knowledge of the internals of standalone and networked computing infrastructure, including the instruction set architecture and microarchitecture of Intel's 32-bit microprocessors, the Windows operating system, the Linux/UNIX operating systems, and the TCP/IP-based network protocols.
- A working grasp of embeded/real-time systems development
- A deep understanding of Programming Language, Object Orientation, Software Reuse, Software Component/Architecture, and Software/Network Security
- An effective communicator and presenter
- A collaborative worker

Research and Development Projects

2004.6-2004.9 preEmpt (formerly Qwik-Fix Pro) uses Active System Hardening to protect Windows desktops and servers against new threats by blocking the underlying vulnerabilities exploited by worms and viruses. As an intern security researcher of PivX Labs, I researched the security features of Internet Explorer and other Windows kernel components and developed solutions to enhance system security.

2004.4-2005.9 The Impromptu file sharing application, as a subproject of the Swirl project, investigates how usable security can be achieved by visualizing security-relevant events delivered by the messaging infrastructure. The first prototype uses a secure WebDAV connector based on an IP address-based authentication scheme and a method-based authorization mechanism. A rearchitected version uses standard web.xml deployment descriptor authorization and WebDAV ACL authorization. The project is written in Java. I am the architect and security lead of the project.

2003.7-2006.1 Secure xADL models access control for software architecture. It uses subject, principal, resource, privilege, safeguard, and policy to model different access control models (classic, role-based, trust management) at the architecture level. A framework and a tool set (written in Java) have been developed to support developing event-based applications using Secure xADL. Two significant third-party applications, the Firefox browser and the Microsoft DCOM series protocol, are modeled with this methodology. The modeling is focused on the security architecture of these applications. It tries to highlight potential security issues from a higher abstraction level. This is my dissertation research.

2002.8-2003.6 Bridge between procedure call and message passing is a bridge that integrates two paradigms, procedure call and message passing, seamlessly, so a component written according to one paradigm can use its native communication style to inteoperate with a component written in another paradigm. A library that bridges COM and ArchStudio 3 is being developed as a proof of concept. The bridge is written in Visual C++ and Java.

2002.7-2002.9 Magi Enterprise is a secure peer-to-peer collaboration product made by Endeavors Technology Inc. As an intern, I was a member of the quality assurance team for its 3.1 release, writing testing programs to regression test its Windows shell integration and peer management features.

2000.7-2001.10 Visio Editor for C2/xADL is a graphical front end of ArchStudio 3, an architecture-based development environment. It can be used to create xADL 2.0 (an XML-based architecture description language for describing software architectures) documents graphically, with special support for the component- and message- based C2 architecture style. I am the author. It is based on Microsoft Visio, written in Visual Basic and Java.

1997.11-1998.1 Internet User Account Management System for Shanghai Long Distance Telecommunication Office. The purpose of the system is to enable the administrator, operators and ordinary customers to manage the accounts with

corresponding privileges. A Sun server runs both an Apache web server and a Sybase System 10 database server, and the two servers interact via Sybase's web.sql using CGI. I designed the system and write all the web.sql programs.

1996.11-1997.5 China On-Line Internet Access System in Shanghai. The Ethernet connects several Sun servers, an Annex 7000 dial-up server, and a Cisco 2514 router. Services such as DNS, Mail, and WWW run on the servers. I'm one of the engineers.

1996.10-1997.11 Component-based Graphics Editor. It has a core graphical engine, using components to support different types of diagrams. It is part of the National Key Project "Jade Bird III" CASE Environment. I'm the architect and integrator. It is written in Visual C++.

1996.9-1997.6 Shang Hai Telephone Directory Company's Business Management System. I'm in charge of the subsystem of work sheet management. It is written in Borland Delphi.

1996.4-1996.7 V5 Interface Card. It is a signaling system for the Zhong Xing telephone switch. I'm in charge of implementing the data link level protocol of the V5 standard. The software executes under the iRMX real-time operating system, but it is cross-developed on Windows. I have developed a simulation layer to ease debugging under Windows. The protocol implementation and support routines are written in C.

1995.7-1996.3 Voice Mailbox System. It is an add-on service for the Zhong Xing telephone switch. I'm in charge of the fault-tolerant hard drive driver for the voice-processor. The whole system executes under the iRMX real-time operating system. The driver is written in C.

1993.7-1994.11 C Coding Tool, a syntax-highlighted, X/Motif-based editor. It is part of the National Key Project "Jade Bird II" CASE Environment. I'm the author. It is written in C++.

Teaching Experience

- Reader, ICS 142, Compilers and Interpreters, Winter 2004
- Reader, ICS 121, Software Tools and Methods, Fall 2003
- Teaching Assistant, ICS 52, Introduction to Software Engineering, Spring 2003
- Reader, ICS 125, Project in Software System Design, Winter 2003
- Teaching Assistant, ICS 123, Software Architectures, Distributed Systems, and Interoperability, Fall 2002
- Teaching Assistant, ICS 121, Software Tools and Methods, Spring 2000
- Teaching Assistant, ICS 125, Project in Software System Design, Winter 2000
- Teaching Assistant, ICS 125, Project in Software System Design, Fall 1999
- Co-Instructor, Advanced Software Engineering, Fudan University, Spring 1999
- Co-Instructor, Advanced Software Engineering, Fudan University, Spring 1998

Publications

Jennifer Rode, Carolina Johansson, Paul DiGioia, Roberto Silva Filho, Kari Nies, David Nguyen, Jie Ren, Paul Dourish, David Redmiles, *Seeing Further: Extending Visualization as a Basis for Usable Security*, to appear in the proceedings of the 2006 Symposium On Usable Privacy and Security, Pittsburgh, PA, July 12-14, 2006.

Jie Ren, Richard Taylor, *A Secure Software Architecture Description Language*, Proceedings of the Workshop on Software Security Assurance Tools, Techniques, and Metrics, held in conjunction with the 20th IEEE/ACM International Conference on Automated Software Engineering, Long Beach, California, USA, November 7-11, 2005.

Jie Ren, Richard Taylor, *Automatic and Versatile Publications Ranking for Research Institutions and Scholars*, to appear in the Communications of the ACM.

Rogerio de Paula, Xianghua Ding, Paul Dourish, Kari Nies, Ben Pillet, David Redmiles, Jie Ren, Jennifer Rode, Roberto Silva Filho, *In the Eye of the Beholder: A Visualization-based Approach to Information System Security*, International Journal of Human-Computer Studies (IJHCS), Vol. 63, No. 1-2, pp. 5-24, July 2005.

Rogerio de Paula, Xianghua Ding, Paul Dourish, Kari Nies, Ben Pillet, David Redmiles, Jie Ren, Jennifer Rode, Roberto Silva Filho, *Two Experiences Designing for Effective Security*, Proceedings of the 2005 Symposium On Usable Privacy and Security, pp. 25-34, Pittsburgh, PA, July 6-8, 2005.

Jie Ren, Richard Taylor, Paul Dourish, David Redmiles, *Towards An Architectural Treatment of Software Security: A Connector-Centric Approach*, Proceedings of the Workshop on Software Engineering for Secure Systems, held in conjunction with the 27th International Conference on Software Engineering, St. Louis, Missouri, USA, May 15-16, 2005.

Jie Ren, Richard Taylor, *Utilizing Commercial Object Libraries within Loosely-Coupled, Event-Based Systems*, Proceedings of the 8th IASTED International Conference on Software Engineering and Applications , pp. 192-197, Cambridge, Massachusetts, USA, November 9-11, 2004.

Jie Ren, Richard Taylor, *An Automatic and Generic Framework for Ranking Research Institutions and Scholars based on Publications*, Technical Report UCI-ISR-04-5, June 2004.

Jie Ren, *Modular Security: Design and Analysis*, Technical Report UCI-ISR-04-4, June 2004.

Jie Ren, Richard Taylor, *Visualizing Software Architecture with Off-The-Shelf Components*, Proceedings of the 15th International Conference on Software Engineering & Knowledge Engineering, pp. 132-141, San Francisco, California, USA, July 1-3, 2003.

Jie Ren, Richard Taylor, *Incorporating Off-The-Shelf Components with Event-based Integration*, Proceedings of the ISCA 12th International Conference on Intelligent and Adaptive Systems and Software Engineering, pp. 188-191, San Francisco, California, USA, July 9-11, 2003.

Jie Ren, Richard Taylor, *Incorporating Off-The-Shelf Components with Event-based Integration*, Technical Report UCI-ISR-03-2, April 2003. (This is a longer version of the above paper.)

Jie Ren, *Internet-scale Event Notification: Architecture Alternatives*, position paper for Workshop on Evaluating Software Architectural Solutions, Irvine, California, USA, May 8-9, 2000.

Junfeng Wang, Xiaobin Qi, Kuanli Xia, Jie Ren, *Design Patterns and UML*, Application Research of Computers, vol. 16, no.5, pp. 27-30, May 1999. In Chinese.

Shengxin Zhang, Jie Ren, Leqiu Qian, *Investigation and Research on Components Matching Methods*, Computer Engineering, vol. 25, no. 3, pp. 8-10, March 1999. In Chinese.

Jie Ren, Wenyun Zhao, Yongxue Sun, Leqiu Qian, *Research on Domain-Specific Software Architecture*, Computer Engineering, vol. 23, Special Issue, pp. 222-224, December 1997. In Chinese.

Jie Ren, Leqiu Qian, *The Object-Oriented Development of C Coding Tool,* Proceedings of 5th Chinese National Conference on Software Engineering, Shanghai, China, December 1993. In Chinese.

Service

I developed an application to rank institutions and authors by their publications, based on bibliographic data. The application can be used for ranking in many subfields of computer science research. It can accommodate many ranking policies.

I maintained the website for the 20th IEEE/ACM International Conference on Automated Software Engineering.