

JeeHyun Hwang

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Objective

- To secure a summer internship position for summer 2010

Research Interests

- Software Engineering (in particular, Software Testing and Security Testing)
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Education

Ph.D., North Carolina State University, Raleigh - NC, USA; Fall 2006 - present
Pursuing Doctorate degree in Computer Science
Advisor : *Dr. Tao Xie* (GPA 3.70/4.00)

M.S., State University of New York at Stony Brook - NY, USA; 2005
Master of Science in Computer Science (GPA 3.68/4.00)

B.S., Korea University - Seoul, Korea; 2003
Bachelor of Science in Computer Science and Engineering (GPA 3.59/4.50)

Academic Experience

North Carolina State University, Raleigh, USA

Spring 2007 - Current

Research Assistant, Department of Computer Science

Fall 2007 - Current

- Fault localization for firewall policies with Dr. Tao Xie and Dr. Alex Liu (MSU).
- Test generation for various access control policies with Dr. Tao Xie and Dr. Vincent Hu (NIST).
- Efficient XACML policy evaluation with Dr. Tao Xie and Dr. Alex Liu (MSU).
XACML is a widely used access control policy specification language. XACML policies grow rapidly in size and complexity, which leads to more time on processing requests. This project concerned the performance of processing requests, which is a critical issue. We proposed XEngine for efficient XACML policy evaluation.
- Detection of potential security leakage in XACML policies with Dr. Tao Xie and Dr. Vincent Hu (NIST).
Assuring the correctness of access control policy specifications is becoming an important and yet challenging task. In XACML specification, we proposed the detection mechanism of potential security leakage called multiple-duty-related security leakage, which grants unauthorized access to a user when the user takes multiple duties.
- Systematic Structural Testing of Firewall Policies with Dr. Tao Xie and Dr. Alex Liu (MSU).
We propose a systematic structural testing approach for firewall policies. In our approach, we define and measure structural coverage (based on coverage criteria of rules, predicates, and clauses) on the program code converted from a given policy under test.

Yanbian University of Science and Technology, Yanji, China

Spring 2006

Visiting Lecturer, Department of Computer Science

- Lectured, graded homework, quizzes, and labs, prepared and conducted review sessions, and held office hours for the courses, 'Programming Language', 'C++' and 'Unix'.

State University of New York at Stony brook, Stony brook, NY

Fall 2004 - Spring 2005

Research, Department of Computer Science

- Designed and implemented an algorithm for extracting imaginary data from video sequences and constructing them to 3D Visualized Objects by using OpenGL and FLTK toolkit.

Professional Experience

ABB Inc., Raleigh, USA

Summer 2008

Intern, U.S. Corporate Research Center

- We worked on feasibility study for semi-automated defect classification based on defined taxonomies. This work is the extension of 2007 summer internship work.

ABB Inc., Raleigh, USA

Summer 2007

Intern, U.S. Corporate Research Center

- Worked on categorizing defects of Process Portal A (PPA) System. Found and categorized the possible root causes of defects described in defect report using Beizer's defect taxonomy.

Samsung Data System., Seoul, Korea

Jan 2003 – Aug 2003

Software Engineer, Information System Group

- Worked on operating and maintaining the credit payment transaction processing system that had more than 200,000 payment transactions per day.

Samsung Data Systems., Seoul, Korea

June 2002 – Aug 2002

Software Development Intern, Information System Group

- Designed, developed, and implemented the graphical interface of Samsung's customer management system. Acted as the project leader and advocate of the graphical interface team.

2nd Battalion 17th Field Artillery., U.S. Army, Korea

Feb 1999 – Apr 2001

Software Engineer, Administrative Office

- Operated, maintained the information system.

Publications

Conferences (5)

1. **JeeHyun Hwang**, Tao Xie, Fei Chen, and Alex X. Liu

“Fault Localization for Firewall Policies”

To appear In Proceedings of the 28th IEEE International Symposium on Reliable Distributed Systems (SRDS 2009), Napoli, Italy, October 2008. , Short Paper, Niagara Falls, New York, September 2009.

2. **JeeHyun Hwang**, Tao Xie, and Vincent C. Hu

“Detection of Multiple-Duty-Related Security Leakage in Access Control Policies”

To appear in Proceedings of the 3rd IEEE International Conference on Secure Software Integration and Reliability Improvement (SSIRI 2009), Shanghai, China, July 2009.

3. Evan Martin, **JeeHyun Hwang**, Tao Xie, and Vincent C. Hu

“Assessing Quality of Policy Properties in Verification of Access Control Policies”

In Proceedings of the 24th Annual Computer Security Applications Conference (ACSAC 2008), Anaheim, California, December 2008

4. **JeeHyun Hwang**, Tao Xie, Fei Chen, and Alex X. Liu

“Systematic Structural Testing of Firewall Policies”

In Proceedings of the 27th IEEE International Symposium on Reliable Distributed Systems (SRDS 2008) Napoli, Italy, October 2008.

5. Alex X. Liu, Fei Chen, **JeeHyun Hwang**, and Tao Xie

“XEngine: A Fast and Scalable XACML Policy Evaluation Engine”

In Proceedings of the International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS 2008), Annapolis, Maryland, June 2008.

Workshops (2)

1. Nuo Li, **JeeHyun Hwang**, and Tao Xie

“Multiple-Implementation Testing for XACML Implementations”

In Proceedings of the Workshop on Testing, Analysis and Verification of Web Software (TAV-WEB 2008), Seattle, WA, July 2008.

2. Vincent C. Hu, Evan Martin, **JeeHyun Hwang**, and Tao Xie

“Conformance Checking of Access Control Policies Specified in XACML”

In Proceedings of the 1st IEEE International Workshop on Security in Software Engineering (IWSSE 2007), Beijing, China, July 2007.

Honors and Awards

- Academic honors in Computer Science Studies, Korea University (2001-2002)
- U.S. Army Commendation Medal for outstanding performance in U.S. Army (2001)

Technical Expertise

- Programming Languages: JAVA, C, C++, Tcl/Tk, Cobol, Visual Basic, Shell Scripting, OpenGL
- Operating Systems: Linux, Solaris, Windows 9x/NT/2000, MS-DOS
- Development Tools: Eclipse, National Rose, Matlab, Fast light Toolkit (FLTK), 3D Max
- Databases: Oracle 8i, MS SQL, DB2, Microsoft Access
- Web: HTML, PHP, JSP, JavaScript, XML, VoiceXML, XPath
- Networking: HTTP, TCP/IP, UDP, P2P, Socket API

References

▪ Tao Xie

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▪ Alex X. Liu

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