

Youngsang Shin

ShinDongA APT 701-502
Suseo-Dong, Kangnam-Gu
Seoul, 135-782
South Korea

Phone: +82-10-2818-0466
Email: ysshin@gmail.com
Web: <http://www.cs.indiana.edu/~shiny>

RESEARCH INTERESTS

My research interests are broadly in **network security** and **computer networks**. I am particularly interested in **Web security**, **mobile security**, and **wireless security** with areas of interest including the follows:

- Mitigation of forum spam, web spam, email spam, and spam in emerging Internet media; Web 2.0 security; botnets, malware, DDoS, network-based attacks
- Energy-efficient secure wireless communication on mobile devices; mobile device security; cloud computing security

EDUCATION

- Ph.D.** **Computer Science**, August 2011
Indiana University, Bloomington, IN, USA
Thesis Title: Understanding and Mitigating Forum Spam
Advisors: Prof. Minaxi Gupta, Prof. Steven Myers
- M.S.** **Computer Science**, emphasis in Databases, May 2004
University of Wisconsin, Madison, WI, USA
- M.S.** **Computer Engineering**, emphasis in Databases, February 2000
- B.S.** **Computer Engineering**, February 1998 (ranked 2nd out of 63)
Pusan National University, Busan, Korea

PROFESSIONAL & RESEARCH EXPERIENCE

Research Assistant May 2005 – August 2011
Indiana University, Bloomington, IN, USA

Conducted and published the following network security research under the direction of Prof. Minaxi Gupta and Prof. Steven Myers:

- Analyzed the network-level characteristics of spammers and their spamming behavior; examined the link structure of Web graphs rooted at forum spammers' URLs; implemented noble spam classifiers for forum and email spam detection respectively using machine learning algorithms, Java, and Python [1,2,6,13].
- Implemented a fast energy-efficient IPsec session reestablishment scheme using *strongSwan* and C; designed and simulated a practical and effective power-cycling scheduler for an energy saving scheme on WiFi mobile devices with required IPsec for VPN using Indiana University wireless network session traces and Python [3].
- Identified malware infection dynamics by collecting and inspecting network logs of *Asprox* bots, web

hosts delivering malicious JavaScript codes, and web servers infected by *Asprox* SQL injection attacks [4].

- Conducted the comprehensive performance evaluation of SSL on PDAs by adapting and benchmarking *OpenSSL* on *MS Windows Mobile* PDA [5].
- Investigated the performance overhead of IPsec by developing a test suite and modifying *Openswan*, an open source IPsec implementation [7].

Developed a type inferencing scheme to automatically translate *Matlab* scripts to C/C++ codes using C++ under the direction of Prof. Arun Chauhan.

Associate Instructor

January 2005 – December 2009

Indiana University, Bloomington, IN, USA

Computer Networks; Algorithms Design and Analysis; Introduction to Computer & Computing

Research Assistant

September 2003 – May 2004

University of Wisconsin, Madison, WI, USA

Conducted research on efficient maintenance of semi-structured metadata using DBMS including relational database and XML data management systems; implemented a *Linux* daemon maintaining the metadata and allowing a fast query processing in it for *Condor* job matchmaking using *PostgreSQL* and C/C++ under the direction of Prof. Jeffrey Naughton and Prof. Miron Livny.

Teaching Assistant

January 2003 – May 2003

University of Wisconsin, Madison, WI, USA

Introduction to Operating Systems

Research Staff

March 2000 – June 2001

CyberMapWorld Co., Ltd. (now SensingMap Co., Ltd.), Busan, Korea

Developed storage, indexing, and synchronization modules for a mobile Geographic Information System client on MS Pocket PC PDA using MS Visual C++; invented a concurrent update scheme for a client-server spatial DBMS; designed and implemented a communication module for a Web Geographic Information System server using C.

Staff

July 1999 – December 1999

Intergraph Korea Co., Ltd., Seoul, Korea

Conducted the development of an interoperable Microsoft OLE DB based *OpenGIS*-compliant data provider to access spatial data in Intergraph MGE servers using C++.

Research Assistant

March 1998 – February 2000

Pusan National University, Busan, Korea

Designed and implemented concurrency control and consistency maintenance of cached spatial data in a client-server environment using Laser-Scan Gothic and C++ under the direction of Prof. Bong-Hee Hong [8,9,10,11,12].

HONORS AND AWARDS

- CACR Fellow, Center for Applied Cybersecurity Research, Indiana University, 2009–2011.
- Departmental fellowship, Computer Science department, Indiana University, 2004–2009.
- Information and telecommunication national scholarship, Ministry of Information and

Communication, Korea, 2001-2004.

- Best paper award, Korea Information Science Society, Korea, April 2000.
- Department merit-based scholarship, Pusan National University, Korea, 1991 - 2000.

PEER REVIEWED PUBLICATIONS

1. **Youngsang Shin**, Minaxi Gupta, and Steven Myers, "**Prevalence and Mitigation of Forum Spamming**," Proceedings of IEEE International Conference on Computer Communications (INFOCOM), April 2011.
2. **Youngsang Shin**, Minaxi Gupta, and Steven Myers, "**The Nuts and Bolts for a Forum Spam Automator**," Proceedings of USENIX Workshop on Large-Scale Exploits and Emergent Threats (LEET), March 2011.
3. **Youngsang Shin**, Steven Myers, and Minaxi Gupta, "**Saving Energy on WiFi With Required IPsec**," Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering, Vol. 50, ICST Conference on Security and Privacy Communication Networks (**SecureComm**), September 2010.
4. **Youngsang Shin**, Steven Myers, and Minaxi Gupta, "**A Case Study on Asprox Infection Dynamics**," Lecture Notes in Computer Science 5587, International Conference on Detection of Intrusions and Malware & Vulnerability (**DIMVA**), pp. 1-22, July 2009.
5. **Youngsang Shin**, Minaxi Gupta, and Steven Myers, "**A Study of the Performance of SSL on PDAs**," Proceedings of IEEE INFOCOM Global Internet Symposium (GI), April 2009.
6. **Youngsang Shin**, Minaxi Gupta, Rob Henderson, and Aaron Emigh, "**Separating Wheat from the Chaff: A Deployable Approach to Counter Spam**," Proceedings of USENIX Workshop on Steps to Reducing Unwanted Traffic on the Internet (**SRUTI**), July 2006.
7. Craig Shue, **Youngsang Shin**, Minaxi Gupta, and Jong Youl Choi, "**Analysis of IPsec Overheads for VPN Servers**," Proceedings of IEEE ICNP Workshop on Secure Network Protocols (**NPsec**), November 2005.
8. Bonggi Jun, Sungwoo An, **Youngsang Shin**, Donghyun Kim, and Bong-Hee Hong, "**The Issues of Developing a Mobile Digital Map System for IMT-2000 Services**," Proceedings of Korean Database Conference (**KDBC**), June 2001.
9. **Youngsang Shin** and Bong-Hee Hong, "**Concurrency Control and Consistency Maintenance of Cached Spatial Data in Client-Server Environment**," Journal of the Korea Information Science Society: Databases Vol. 28, Num. 3, September 2001.
10. Jinhoh Choi, **Youngsang Shin**, and Bong-Hee Hong, "**Update Propagation of Replicated Data in Distributed Spatial Database**," Lecture Notes in Computer Science 1677, International Conference on Database and Expert Systems Applications (**DEXA**), pp. 952-963, 1999.
11. **Youngsang Shin**, Jinhoh Choi, Daesoo Cho, and Bong-Hee Hong, "**Concurrency and Consistency Control of Spatial Data in Client-Side Update Transactions**," Proceedings of the Korea Information Science Society Fall Conference, 1999.
12. **Youngsang Shin**, Jinhoh Choi, and Bong-Hee Hong, "**Update Propagation of Cached Spatial Data in Client-Server Environment**," Proceedings of the Korea Information Science Society Spring Conference, 1999.

Under Review

13. **Youngsang Shin**, Steven Myers, and Minaxi Gupta, “A Link Graph-based Approach to Identify Forum Spam”.

TECHNICAL SKILLS

Programming Languages: C/C++, Java, Python, JavaScript, HTML/CSS, XML, SQL

Platforms: Linux, Mac OSX, Microsoft Windows, Microsoft Windows Mobile, Google Android, Apple iOS

Databases: PostgreSQL, MySQL, Berkeley DB/DB XML, Oracle

PROFESSIONAL SERVICE

Reviewer

- Computer Networks, an Elsevier Journal, 2011.
- IEEE International Conference on Computer Communications (INFOCOM), 2008–2011.
- ACM SIGCOMM/SIGMETRICS Internet Measurement Conference (IMC), 2010.
- ACM Conference on Computer and Communications Security (CCS), 2008– 2009.
- IEEE ICNP Workshop on Secure Network Protocols (NPsec), 2009.
- ICST International Conference on Pervasive Computing Technologies for Healthcare (Pervasive Health), 2009.
- IEEE International Conference on Computer Communications and Networks (ICCCN), 2008– 2009.
- IEEE Workshop on Local and Metropolitan Area Networks (LANMAN), 2008.
- IEEE International Conference on Parallel and Distributed Systems (ICPADS), 2007.
- International Association for Cryptologic Research (IACR) Conference on Information Security and Cryptology (INSCRYPT), 2006.

REFERENCES

Available upon request.