Naoki Tanaka

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Experience

Senior Software Engineer January 2017 – Present
Oracle America, Inc., Linux Engineering Santa Clara, CA

- Served as Oracle Linux's primary SELinux developer and Mandatory Access Control (MAC) subject-matter expert, advising engineers and technical leadership across multiple organizations on policy design, confinement strategy, and security troubleshooting.
- Developed and maintained SELinux policies for the default targeted policy as well as minimum and highly specialized Multi-Level Security (MLS) variants.
- Identified and resolved SELinux defects across Oracle Linux, including uncovering flaws in internally maintained test suites, improving both product quality and validation coverage.
- Initiated upstream contributions to Fedora's selinux-policy project, with 18 pull requests merged upstream, becoming the project's #19 all-time contributor — notable as the project is primarily maintained by Red Hat and Fedora engineers.

Senior Software Engineer August 2014 – January 2017
Oracle America, Inc., Solaris Security Engineering Santa Clara, CA

- Developed Verified Boot for Kernel Zones and LDoms (Oracle VM Server for SPARC) on Solaris in C to detect accidental or malicious modification of kernel modules before loading by verifying factory-signed signatures.
- Designed and developed audit of Solaris Verified Boot events in C to generate audit trails when inappropriately-signed kernel modules are to be loaded.
- Integrated key components for multi-factor authentication such as OpenCA Research Labs' OCSP Responder and LibPKI into Solaris.
- Developed a prototype TPM 2.0 driver for Solaris in C to eliminate dependencies on obsolete cryptography algorithms such as SHA-1 used in TPM 1.2 standard.

Research Assistant August 2010 – July 2014
University of Illinois at Urbana-Champaign, Department of Computer Science Urbana, IL

- Designed a rational approach based on actuarial methods to encourage appropriate information sharing inside a virtual organization.
- Developed a discrete event simulator for the proposed approach in C++ with Boost C++ Libraries and its GUI interface for Mac in Objective-C with Core Plot framework.
- Designed and implemented with Node.js and MongoDB an online business simulation game to evaluate my approach.
- Conducted experiments using Amazon Mechanical Turk, and confirmed that my approach could benefit an organization even when human decisions are involved.

Software Engineer Intern May 2013 – August 2013
Facebook Inc., Feed Ranking/Feed Ads Team Menlo Park, CA

- Added new features used by machine learning algorithms for feed ranking using PHP, C++, and Hive; one ranked #1 in importance for feed ads ranking.
- Developed a web interface using PHP and JavaScript that makes it possible to holistically analyze ads data taken from multiple data sources.

Research Fellow October 2011 – October 2012
Institute for Infocomm Research, Cryptography & Security Department Singapore, Singapore

- Interned under the A*STAR Graduate Academy's A*STAR Research Attachment Programme in Singapore for one year.
- Proposed and analyzed using C++ with Boost C++ Libraries a decision framework that enables a virtual organization to select an optimal portfolio of risky data accesses that will maximize the benefit subject to a given risk budget.

Education

Ph.D., Computer Science — December 2014
University of Illinois at Urbana-Champaign — Urbana, IL
Thesis: Sustainable Approaches to Ad-Hoc Information Sharing for Virtual Organizations

Master of Information Science and Technology, Bioinformatic Engineering — March 2005
Osaka University — Osaka, Japan

Bachelor of Engineering, Information and Computer Sciences — March 2003
Osaka University — Osaka, Japan

Skills

Languages: C/C++, Python, Shell Script, Java, PHP, JavaScript, Perl, Objective-C
Systems: Linux (LPIC Level 3 Core, Security), Oracle Solaris, macOS, Windows
Infrastructure: FreeIPA, LDAP, Kerberos, DNS/BIND, Nginx, Postfix, WireGuard, Prometheus, Grafana
Tools: Git, Mercurial, Subversion, GCC, Make, VS Code, Eclipse, Xcode
Databases: Oracle, PostgreSQL, MySQL, Hive, MongoDB
HPC: Platform LSF, Oracle Grid Engine, Condor
Web: HTML, CSS, XML, Node.js, jQuery
Documentation: LaTeX, UML
Analysis: R, Gnuplot, Spotfire

Refereed Publications

Naoki Tanaka, Marianne Winslett, Adam J. Lee, David K. Y. Yau, Feng Bao. "Insured Access: An Approach to Ad-hoc Information Sharing for Virtual Organizations". *Proceedings of the third ACM Conference on Data and Application Security and Privacy (CODASPY)*, pp. 301-308, San Antonio, TX, USA, February 2013.

Yuhao Zheng, David M. Nicol, Dong Jin, **Naoki Tanaka**. "A Virtual Time System for Virtualization-Based Network Emulations and Simulations". *Journal of Simulation*, 6 (3), pp. 205-213, August 2012.

David C. Bergman, Dong Jin, Joshua P. Juen, **Naoki Tanaka**, Carl A. Gunter, Andrew K. Wright. "Distributed Non-Intrusive Load Monitoring". *Proceedings of the 2011 IEEE/PES Conference on Innovative Smart Grid Technologies (ISGT)*, Anaheim, CA, USA, January 2011.

David C. Bergman, Dong Jin, Joshua P. Juen, **Naoki Tanaka**, Carl A. Gunter, Andrew K. Wright. "Nonintrusive Load-Shed Verification". *IEEE Pervasive Computing*, 10 (1), pp. 49-57, January 2011.

Naoki Tanaka, Kazuki Ohno, Tatsuya Niimi, Ayako Moritomo, Kenichi Mori, Masaya Orita. "Small-World Phenomena in Chemical Library Networks: Application to Fragment-Based Drug Discovery". *Journal of Chemical Information and Modeling*, 49 (12), pp. 2677-2686, December 2009.