

Daisuke Mashima

Citizenship: Japan (F-1 Status)

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SUMMARY

I am a PhD candidate majoring computer science at Georgia Institute of Technology. My thesis work is focused on safeguarding sensitive data in distributed environment by enhancing information accountability and user awareness and control. My research explores practical solutions for this goal primarily in emerging electronic health record sharing systems and includes design of a user-controlled monitoring system for identity credentials [10] and usage and update of electronic healthcare records [2] as well as mechanisms to mitigate insider threats [7]. My research interest and experience further cover identity management, user authentication, applied cryptography, anomaly detection, system virtualization for designing secure end-user devices, and information visualization for information security. I served / will serve as a technical program committee member of ICIMP 2009, 2010, 2011, and 2012 and as a reviewer of IEEE Security & Privacy Magazine. *I am currently looking for a full-time, research-oriented position in information security area.*

EDUCATION

(1) Ph.D. Candidate in Computer Science at Georgia Institute of Technology, Atlanta, GA (08/2006 – 08/2012 Expected)

Adviser: Prof. Mustaque Ahamad

GPA: 3.89/4.0

Relevant Coursework: Network Security, Applied Cryptography, Computability and Algorithms, Human-Computer Interaction, Computational Data Analysis, Statistical Methods, Random Processes, and Regression Analysis

(2) M.S. in Engineering / B.E. at Keio University, Japan (04/1994 - 03/2000)

Advisor: Prof. Nobuo Shinozaki

Major: Administration Engineering

Minor: Statistics

RESEARCH PROJECTS

(1) GUIDE-ME: Georgia tech User-centric IDENTITY Management Environment (2007-2010)

- Design a user-centric identity management architecture involving networked and local identity agents that help enhance security and privacy as well as a user-centric monitoring system aiming at higher-level of user control and awareness over online identity credential usage.

(2) MedVault: Ensuring Security & Privacy for Medical Data (2008-Present)

- Develop new techniques to securely share and manage electronic medical records (EMR) based on patients' access control policies by using networked patient agents and user-centric identity management model.

(3) Context-based Risk Scoring Engine (2008-2010)

- Devise a mechanism that calculate anomaly scores for each login attempt to a system based on context information, such as timestamp, geographic location, etc., which are generally obtained in access log records, in a real-time fashion.

(4) GMap: Visualization of Relational Data as Maps (2009-2011)

- Explore ways to effectively visualize a large-scale dynamic data using a geographic map metaphor and implemented a prototype system for trend visualization.

RECENT PUBLICATIONS

- [1] Alvaro Cardenas and **Daisuke Mashima**. A paper about security in SmartGrid is currently under preparation for submission to an information security conference.

- [2] **Daisuke Mashima** and Mustaque Ahamad. "Enhancing Accountability of Electronic Health Record Usage via Patient-centric Monitoring." To appear at the 2nd ACM SIGHIT International Health Informatics Symposium, Miami, FL, 2012.

- [3] **Daisuke Mashima**, Elaine Shi, Richard Chow, Prateek Sarkar, Chris Li, and Dawn Song. "Privacy Settings from Contextual Attributes: A Case Study Using Google Buzz." In Proc. of SESOC 2011, Seattle, WA, 2011. [Acceptance Rate: 27%]

- [4] **Daisuke Mashima**, Stephen Kobourov, and Yifan Hu. "Visualizing Dynamic Data with Maps." In Proc. of The 4th IEEE Pacific Visualization Symposium (PacificVis 2011), Hong Kong, 2011. [Acceptance Rate: 33%] (*Also accepted to appear in IEEE TVCG journal, 2012*)

- [5] **Daisuke Mashima**, David Bauer, Mustaque Ahamad, and Douglas M. Blough. "User-centric Identity Management Architecture Using Credential-holding Identity Agents." To appear in "Digital Identity and Access Management: Technologies and Frameworks" edited by Raj Sharman, Manish Gupta and Sanjukta Das-Smith, IGI Global, 2011. [Invited Book Chapter]

- [6] Mustaque Ahamad, Douglas Blough, Ling Liu, David Bauer, Apurva Mohan, **Daisuke Mashima**, Bhuvan Bamba, Balaji Palanisamy, Ramkumar Krishnan, Italo Dacosta, and Ketan Kalgaonkar. "MedVault: Health Professional Access to Source-Verifiable Patient-Centric PHR Repository," at Poster Session in 19th Usenix Security Symposium, Washington, DC, 2010. [Poster]

- [7] **Daisuke Mashima**, Abhinav Srivastava, Jonathon Giffin, and Mustaque Ahamad. "Protecting E-healthcare Client Devices against Malware and Physical Theft." In Proc. of USENIX HealthSec 2010, Washington, DC, 2010. [Position Paper]

- [8] **Daisuke Mashima** and Mustaque Ahamad. "Using Identity Credential Usage Logs to Detect Anomalous Service Accesses," in Proc. of The Fifth ACM Workshop on Digital Identity Management (ACM DIM 2009), Chicago, IL, 2009.

- [9] Apurva Mohan, David Bauer, Douglas M. Blough, Mustaque Ahamad, Bhuvan Bamba, Ramkumar Krishnan, Ling Liu, **Daisuke Mashima**, and Balaji Palanisamy. "A Patient-centric, Attribute-based, Source-verifiable Framework for Health Record Sharing," as Technical Report GIT-CERCS-09-11, 2009. [Technical Report]

- [10] **Daisuke Mashima**, Mustaque Ahamad, and Swagath Kannan. "User-centric Handling of Identity Agent Compromise," in Proc. of ESORICS 2009, Saint Malo, France, 2009. [Acceptance Rate: 19%]

- [11] **Daisuke Mashima** and Mustaque Ahamad. "Towards User-Centric Identity-Usage Monitoring System" in Proc. of the Third International Conference on Internet Monitoring and Protection, Bucharest, Romania, 2008. [Acceptance Rate: 23%]

PROFESSIONAL EXPERIENCE

(1) Fujitsu Lab of America, Sunnyvale, CA (05/2011 – 08/2011)

Position: Summer Intern [Mentor: Dr. Alvaro Cardenas]

- Worked on a project to improve security in SmartGrid. The outcome of this project is currently under submission.

(2) Palo Alto Research Center, Palo Alto, CA (05/2010 – 08/2010)

Position: Summer Intern [Mentor: Dr. Richard Chow, Dr. Elaine Shi, and Dr. Prateek Sarkar]

- Analyzed changes in privacy-related configuration in Google Buzz online social network.

(3) AT&T Labs, Florham Park, NJ (06/2009 - 08/2009)

Position: Summer Intern [Mentor: Dr. Stephen Kobourov and Dr. Yifan Hu]

- Explored a way to effectively visualize dynamic data, e.g., media trends, by using a map metaphor and implemented a prototype system with an automatic update feature.

(4) eBay Inc., San Jose, CA (05/2008 - 08/2008)

Position: Summer Intern [Mentor: Dr. Li Liu]

- Analyzed data related to security, such as security incidents and fraud detected and results of network scans, and developed Security Metrics system by using Archer SmartSuite Framework. Overview of our project was presented at MetriCon3.0, 2008.

(5) NTT Advanced Technology Co., Japan (04/2000 - 06/2004)

Position: Manager / IT Engineer, System Integration Division

- Engaged in research and development of security-focused systems including onetime password authentication / VPN software for cell phones, a simple VPN optimized for inter-school communication, a groupware optimized for communication within regional communities, a content-protection mechanism for CyberBook, a book-type multimedia document viewer developed by NTT.

TECHNICAL SKILLS

- **Programming Language**

Java, C, C++. Perl, PHP, Python, Visual Basic, Shell Script, Java Script, SQL, HTML, XML, XSLT and UML

- **Data Analysis Tools**

Oracle, DB2, PostgreSQL, MySQL, SQLServer, S-PLUS, R, Statistica, MATLAB, Mathematica, Archer SmartSuite Framework, Graphviz, SVMLight, and LIBSVM

- **Security Tools**

OpenSSH, Zbedee, Hamachi, TCPWrapper, ipchains, iptables, Nessus, Nmap, chkrootkit, Snort, tcpdump, Kismet, NetStumbler, BackTrack, p0f, fl0p, MaxMind GeoIP, John the Ripper, Outpost Firewall, Wireshark (Ethereal), Sentinel HASP, Bouncy Castle Java cryptography APIs, and Java Pairing Based Cryptography Library (jPBC)

AWARDS

- USENIX SECURITY 2010 / USENIX HealthSec 2010 Student Travel Grant (2010)
- ACM CCS 2009 / ACM CCS Workshop 2009 Student Travel Grant (2009)

REFERENCES

Professor Mustaque Ahamad (Email: mustaq@cc.gatech.edu) [Advisor]

Director, Georgia Tech Information Security Center, GA

Professor Douglas M. Blough (Email: doug.blough@ece.gatech.edu)

School of Electrical and Computer Engineering, Georgia Institute of Technology, GA

Dr. Alvaro Cardenas (Email: alvaro.cardenas-mora@us.fujitsu.com)

Research Scientist, Fujitsu Lab of America

Dr. Richard Chow (Email: rchow@parc.com)

Research Scientist, Palo Alto Research Center (PARC)

Dr. Yi-Fan Hu (Email: yifanhu@research.att.com)

Research Scientist, AT&T Labs Research

Professor Stephen Kobourov (Email: kobourov@cs.arizona.edu)

Department of Computer Science, University of Arizona

Dr. Elaine Shi (Email: runting@cs.cmu.edu)

Research Scientist, UC Berkeley

(Listed in alphabetical order)