

Sakthi Sakthivelmurugan

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EDUCATION

Master of Science - Computer Science
Kansas State University, Manhattan, KS.

December 2009

GPA: 3.62

Bachelor of Engineering - Computer Science and Engineering
Anna University, Chennai, India.

June 2005

GPA: 3.69

TECHNICAL SKILLS

- Languages: C, C++, Python, Java, Unix Shell scripting, Prolog
- Databases: MySQL, Oracle
- Tools: Emacs, GDB, Latex, Lex and Yacc, SVN, Snort, Tcpdump, Valgrind, XSB
- Operating systems: Linux, Mac OS X and Windows

RELEVANT COURSEWORK

Analysis and Design of Algorithms, Computer and Information Security, Applied Cryptography, Software Specification, Advanced Operating Systems.

WORK EXPERIENCE

Research Intern – HP Labs, Princeton, NJ

May 2009 - Aug 2009

Supervised by Dr. S. Raj Rajagoplan, System Security Lab.

- Investigated on improving the usability and usefulness of Snort IDS (Intrusion Detection System) alerts by using contextual information such as network topology and host configuration.
- Conducted extensive literature survey and created a detailed technical report listing all the findings that can be useful to improve the usability of Snort.

Graduate Research Assistant – KSU, Manhattan, KS

January 2008 - Present

Supervised by Dr. Xinming Ou, Argus research group, Dept. of CIS.

- Project goal was to create an automated tool for System Administrator to combine low-level and uncertain IDS alarms, to determine machine compromise.
- Developed a reasoning engine in Prolog that can handle uncertain assertions from IDS alerts to derive high-confidence evidence about attacks.
- Developed tools in Python for automatically generating the reasoning model from the Snort rule repository, parsing Snort rules, extracting alerts stored in MySQL and translating them into a format understood by the reasoning engine etc.
- Research work was accepted for publication as a paper in Annual Computer Security Applications Conference (ACSAC), 2009.

Graduate Research Assistant – KSU, Manhattan, KS

August 2007 - December 2007

Department of Plant Pathology, KSU

- Designed and implemented a new Geographical Information Systems (GIS) module to support mapping of multiple attributes such as diseases, affected region and sources for PDIS (Plant Diagnostic Network) – Project funded by USDA. Used ArcGIS for mapping, C# and ASP.NET for web pages and Oracle for storing data.

Software Engineer – Infosys Technologies, Mysore, India

December 2005 - July 2007

Client: SunTrust Bank, Atlanta

- Project: Maintenance and implementation of new features to Internet banking system.
- Developed portal application for business users to update content in the web site using BEA Aqualogic, C# and ASP.NET.
- Debugged C#, VB and BEA Aqualogic, XML, Web Services etc to fix bugs in the user interface, interfaces to third party systems, automated mailing system and interfaces to mainframes.

PUBLICATIONS

- “*An empirical approach to modeling uncertainty in intrusion analysis*”. Xinming Ou, S. Raj Rajagopalan, and Sakthiyuvaraja Sakthivelmurugan. 25th Annual Computer Security Applications Conference (ACSAC), Honolulu, Hawaii, USA, Dec 2009, to appear.
- “*Security in FileVault*” - A technical report on the *implementation and security* of the disk encryption system of Mac OS X. *Fall 2007*

ACADEMIC PROJECTS

- *Implementation of RSA* – Implemented the RSA key generation algorithm, Miller-Rabin algorithm for primality testing and a data structure for storing *1024 bit integer* in Java.
- *Implementation of Double-DES and meet-in-the-middle attack* – Implemented the double DES encryption system using JCE and used the “meet in the middle attack” technique to find the key used for encryption.
- *A repository manager with logic-based authorization* – Implemented a simple logic based authorization and access control policy in a loosely coupled distributed environment using Python and XSB. PLY - python lex and yacc was used to parse the formatted message from the client.
- *Trading Agent Competition* – Improved the dummy agent by using machine learning algorithms for predicting flight ticket prices and hotel bidding. Used Java and WEKA machine learning tool.
- *Intranet Web Search Tool* – Designed and implemented directory crawler, parser and indexer and a simple search server using C, PHP and MySQL to allow students to search lecture notes and course materials hosted on a Linux web server.