SALINI SELVARAJ KOWSALYA

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OBJECTIVE

Seeking a challenging full time position as a software engineer to express and develop my knowledge in the field of operating systems

EDUCATION

University of Wisconsin, Madison, WI, USA Fall 2012 - present
MS in Computer and Information Sciences, **GPA: 3.87/4** (expected: Spring 2014)
College of Engineering, Guindy, Anna University, Chennai, India Fall 2008 – Spring 2012
Bachelor of Engineering in Computer Science, **GPA: 9.44/10**

SKILLS

Languages	:	C, C++, Java, Python, Javascript
Assembly Language	:	x86
Tools	:	git, svn, weka, vim

EXPERIENCE

Research Assistant (In Paradyn project with Prof. Barton Miller) Fall 2012- present

- Working with a software development team on ***Self-propelled Instrumentation***, a dynamic instrumentation technique in which a fragment of code is dynamically injected and propagated across the application process. This is achieved through application binary rewriting
- This software can be used for analyzing the control flow of the distributed application and other security analysis.
- Specifically, I detected and fixed several bugs in the software and added some additional features to it
- Learnt the nuances of dealing with binary code and binary rewriting

Research Fellow at Indian Institute of Technology, Madras, India Summer 2011

- Proposed a new scheme without bilinear pairing offering tight security reduction
- Cryptanalyzed "***Generic Constructions of Identity based and Certificateless KEMs***" and "***Efficient Generic Constructions of Signcryption with Insider Security in the multi-user setting***" which were proposed to be secure in prior work
- Selected as 1 among 13 students for the fellowship programme from all over India

PUBLICATION

S S Kowsalya, S D Selvi, S Sree Vivek, C Pandurangan, "Efficient PKI based signcryption (without bilinear pairing) in the random oracle model with tight security reduction", MIST(Managing Insider Security Threats), Japan, 2012

PROJECTS

Multilevel I/O tagging in a Virtualized environment (with Prof. Remzi Arpaci-Dusseau) Spring 2013

- Tagged I/O requests from the applications within the guest operating system and passed them to the host operating system, thereby giving preferential services to I/O requests for different applications within and across guest virtual machines
- Designed and implemented the system on KVM virtual environment
- Evaluated the system on hard-disks and solid state disks under different workloads and observed that a higher priority application indeed achieved higher throughput and lower latency in comparison to the lower priority application

Website Fingerprinting using Traffic Analysis Fall 2012

- Collected WPA-encrypted packets from five popular websites (using airodump) and trained the system with coarse features such as bandwidth, packet rate and packet length
- Achieved **90-98%** classification for five different websites using basic machine learning classifiers
- Identified that traffic profiles of the websites exhibits different coarse features across different web-browsers

Secure Online Examination System Spring 2012

- Aimed at providing highly secure environment for conducting online examinations such as GRE , TOEFL and SAT
- Successfully proposed and implemented such a system using cryptographic primitives where even if an outsider gets access to the data sent over the communication channel, he cannot read/modify it without the appropriate keys

Picture dictionary Spring 2010

- Developed a learning tool in Java for physically challenged students with an interactive '*Just Click*' interface
- Pictures were zoomed in and out in sequence; when the picture zooms in, we, simultaneously, display the word's spelling and play the recorded pronunciation in the background
- Successfully installed and tested at Spastic Society, Chennai, India

ACHIEVEMENTS AND LEADERSHIP

- Awarded Certificate of Merit by state government twice for securing **state 4th in the 12th grade** and **district 2nd in the 10th grade** examinations
- Held the position of Student Secretary of Department of Computer Science and Joint Secretary of Computer Society of Anna University (CSAU) - the largest semi-technical club of Anna University with over 1000 students