

B. Karthik

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Objective **A challenging position and an active involvement in a progressive organization offering opportunity to fully utilize my analytical, and technical skills in the area of wireless networking, RFID security, security in e-commerce applications, Object oriented systems and databases.**

Education **Master of Technology, Information Technology** **Overall CPI: 8.61**
Indian Institute of Technology, Mumbai **CPI (courses): 8.06**
 CPI (project): 9.38
 June 2005 - till date

Bachelor of Engineering, Computer Engineering **Percentage: 60.66**
K.J. Somaiya College of Engineering,
Mumbai University, Mumbai *May 2005*

Higher Secondary Certificate, **Percentage: 88.00**
Higher Secondary Education,
Maharashtra State Board *March 2001*

Indian School Certificate for Secondary Education, **Percentage: 77.33**
Council for Indian School Certificate Examinations (ICSE) *March 1999*

Skills/Abilities **Technical**

- **Languages:** C, Java, HTML, ASP, PHP, JavaScript, perl, XML, C#
- **Operating Systems:** Windows XP/2000, Linux/Unix
- **Database Systems:** MySQL, MS SQL 2000, Oracle 9i
- **Versioning Systems:** CVS, SVN

Projects **MTech Project:** Issues in RFID database, Advisor *Prof. Bernard Menezes*

RFID technology has the capability to automate many business processes. But, RFID systems are at the verge of data explosion. Working on such huge data is tedious and time consuming. Also, RFID applications like the supply chain and inventory management systems require event triggered actions to be taken. So far no research has been done to generalize this idea. Thus, we will be working towards a method to generalize the process of event triggered actions by specifying a language to define rules and try and incorporate the idea into already existent Sun Java RFID system.

Seminar: RFID Security, Advisor *Prof. Bernard Menezes*

One of the main concerns for RFID security is tracking. Given some RFID tag interactions, an attacker must not be able to track the tag to both its past as well as future interactions. Using cryptographic primitives to thwart traceability issues is one possible approach. But not much satisfactory results have been obtained. In this seminar, we discuss an adversary model and show some attacks on some existing protocols. One of the protocols is a pseudonym based protocol that allows delegation and ownership transfer. The adversary model covers more or less all the aspects of traceability in an RFID protocol.

B.E. Project: Application Firewall Framework, Advisor *Mr. Deepak Sharma*

Filtering of data to and from a network can be done in a number of ways. The Application Level Gateway is one of them that do filtering at the application layer. The Application Level Gateway is the most sophisticated way of filtering data using a firewall. Most scenarios do not require such detailed level of filtering. Also, filtering of data has to be done in an efficient manner with very less overhead in setting up and maintenance. This can be achieved by implementing a filter that works in the Application Layer. We have a scenario where in a client tries to contact a server or a workstation which is in a secure environment. This environment is secured by a firewall that works in the application layer. In such a case, filtering is not only based on just IP address, port number, and protocols used., it is also based on user id, passwords, application being accessed, kind or type of data being transmitted, etc.

Course Projects

Systems Lab: Eclipse plug-in titled 'ArchEd' to provide visual editing capabilities based on Software Architecture.

In this project we developed an eclipse plug-in titled: ArchEd. Immense amount of work was put to understand the eclipse framework, and the design patterns already being used in it. A team of 48 people were working in this project, and hence team co-ordination and team handling were also a critical issue.

During the course of this project, I was exposed to the Eclipse Framework, the Eclipse Modeling Framework (EMF), and the Graphical Editing Framework (GEF). I was also exposed to XML Schemas, XML files, and parsers.

Network Security: Offline micro-payments without trusted hardware.

We surveyed many of the proposed protocols for electronic payments and in particular micro payments. But Credit cards seemed to be the de-facto standard for Web-based and Point-of-sale payments in existence. However, credit cards are not suitable for payments of smaller denominations. One of our goals in this project was to facilitate electronic payments of small denominations using portable hand-held devices. We analyzed the PayWord protocol and proposed a modification to it.

Object Oriented Systems: Design and Implementation of Feed Aggregators.

We designed and implemented a RSS and Atom feed reader using Java. Various design patterns were understood and were used in this project.

Mobile Computing: Performance comparison of two Ad-hoc networking protocols (TORA and AODV) using Opnet network simulator

Experience

Intern, Webaroo Inc., Mumbai (*December 2005*),

Internship included a module on Personalization and some modifications to the existing GUI for handheld devices. Webaroo Inc. works in the field of offline web searching. Their product can also be installed on a hand held device and can be used for searching, without connecting to the Internet. Personalization involved collecting data from the search results and sending them to the server for processing.

Teaching Assistant:

- **Network Security**, IIT, Mumbai (*July 2006 – till date*)
 - **QoS in Networks (DEP mode)**, IIT, Mumbai (*Jan 2006 – April 2006*)
 - **Computer Networks (DEP mode)**, IIT, Mumbai (*July 2005 – Nov 2005*)
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Extra curricular activities

- Organized many events as a member of the council of IT Association, KReSIT during graduation, including Convergence '07 – A Workshop on Networks Research
 - Have contributed a lot of technical articles to the undergraduate college magazine, 'Kshitij' some of which include "A Simple Surround Sound decoder", "An Introduction to RFID Technology", etc.
 - Took active part in organizing seminars during the annual technical undergraduate college festival 'Abhyantriki 2003' (Most of which were given by active and retired IAF personnel)
 - Won Second Prize in the Robotics (Level I) competition at 'Technovanza 2003' held at the Veermata Jijabai Technological Institute, Mumbai
 - Won Third Prize in Corporate Edge event held at Abhyantriki 2006 held at K.J. Somaiya College of engineering.
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I hereby declare that the above mentioned information is correct to best of my knowledge.

Karthik B.

Date : 01st June, 2007