NIKHIL PRADEEP PATIL

M.Tech. with Research Assistantship
Department of Computer Science and Engineering,
Indian Institute of Technology, Bombay
Mumbai, India.

Email: nikhilp@cse.iitb.ac.in
nikhil.patil3721@gmail.com
Contact: +91-9004767645
DOB: 03-Nov-1989

EDUCATIONAL QUALIFICATION

Examination	University	Year	CPI / %	Class
M.Tech.	IIT Bombay	Pursuing Second Year	7.29 (at the end of Ist year)	-
B.E. Computer Engg	Pune University	2007-2011	65.13	First class
HSC	Maharashtra State Board	2006-2007	65.17	First class
SSC	Maharashtra State Board	2004-2005	84.26	Distinction

ACADEMIC ACHIEVEMENTS

- **Best Project of The Year** award for BE Project - RADC at ***Calsoft* Pvt. Ltd.**, Pune.
- Awards for BE Project – "Resiliency Against Data Corruption (RADC)"
  - **Concept of The Year** award by **Dreamz group of PICT**
  - **Best Project of The Year in Systems** by PICT Linux User Group
  - **First runner up** award in **System Applications** at IMPETUS AND CONCEPTS '11, PICT
- **First Runner up Place** in BE Project competition held at MAE.
- **Semi-Finalist** in **C/C++ Programming** (Senior Level) in IMPETUS AND CONCEPTS '10 Held at PICT.
- **Second Place** in **PL/SQL Programming** in Xceed '10 Held at MAE.
- **First Place** in **C/C++ Programming** in TECHNODIUM '09 Held at MAE.
- Certification in IBM Certified Database Associate, DB2 9 Fundamentals.
- Certification in CORE JAVA (with Grade A+) from Seed InfoTech.

ACADEMIC / COURSE PROJECTS

Resiliency Against Data Corruption – RADC — Graduation Project (May '10 – April '11)
Operating Systems – Storage — Guide: *Prof. Amar More, MAE*
Sponsored By: *Calsoft Pvt. Ltd., Pune* — Mr. Vineet Agarwal, Calsoft

Basic Idea:

RADC presents a generalized mechanism to detect SILENT data corruptions on disk and to recover these using a popular technology – RAID at device mapper layer in the kernel storage stack.

Details:

- An *open source solution* to problem of *SILENT* data corruption in the storage stack.
- A generalized solution at the device mapper layer to make solution *independent of filesystem and hardware*.
- Use of an existing popular technology – *RAID* for recovery of corrupt data.
- Systematic approach to project development using incremental model of software development.
- A robust design with effective use of data structures, workqueues, etc.
- Loose coupling with lower layer of RAID making future extensions and reusability possible.
- Project hosting on Google code (creation and maintenance of design wiki pages, summary page, issues and code over SVN).

Environment used:

Linux kernel 2.6.35.5

Project Hosting on Google code: http://code.google.com/p/radc/

PostgreSQL Query Optimization for Flash Spring 2012

Relational Database Systems Guide: *Prof. S. Sudarshan*

The project configures the parameters of tablespace automatically, on its creation, in order to take advantage of flash drives' random access speeds.

Details:

- Queries which need random access to database are *optimized* in a way that is better when random accesses of database blocks are costlier than sequential accesses.
- With flash drives random I/O and sequential I/O will cost roughly same.
- The project is *a patch to PostgreSQL*, which sets the relative cost of I/O to 1 for a tablespace if it is on flash drive. This discards the optimizations based on non-equal cost of disk accesses.
- Performance of certain queries, like queries involving secondary index on non-key attribute is improved.

Environments used:

Postgresql-9.1.2
Linux

WiFi Performance Enhancement Schemes – Analysis and Seminar work Spring 2012

Wireless Networking Guide: *Prof. Bhaskaran Raman*

The work presents a detailed analysis of various techniques (publications) to improve performance of wireless LANs.

- Analysis of eight schemes which improve performance of wireless LANs, by discussing motivation behind the work, key concepts, contribution to wireless networking.
- *Comparison* of these schemes in terms of overheads incurred, changes required, performance improvements, etc. is presented.
- Schemes analyzed include techniques which tune certain characteristic of WiFi like channel width or slot duration, techniques which decode collisions instead of avoiding them, etc.

Fuzzy Classification – Seminar work Autumn 2011

Artificial Intelligence Guide: *Prof. Pushpak Bhattacharya*

- Establishes the importance of fuzzy classification in *decision making*.
- Explores Fuzzy classification query language and presents difference of approach between fuzzy classification and *probabilistic approach*.

Other Projects Undertaken:

- Simulation of *Distributed Fair Scheduling for Wireless LAN*
- College Event Management System
  Environments used: Visual Basic 6.0, Oracle 9i
- **System Administration Work:**
  - Puppet
    - Have set up Puppet, a framework which gives the power of *central controller* in order to do common tasks *periodically*, like maintaining software, ensuring access constraints, etc. *for the labs of CSE, IITB*.

        - It manages around 200 Ubuntu systems in the department during initial installation as well as throughout the system's entire life.
    - LDAP Server

      Currently working on migrating LDAP server of the department from a physical machine to *a virtual machine*.

RELEVANT COURSES *(Till August 2012, Ist Year M.Tech.)*

- Artificial Intelligence
- Computer Networks
- Program Analysis
- Advanced Compilers (Current Semester)
- Relational Database Systems
- Mobile Computing

TECHNICAL SKILLS

- **Programming / Scripting Languages**: C, C++, Assembly language 8086, Core Java, Python, Shell scripting
- **Database:** Oracle, PostgreSQL
- **Operating Systems:** Ubuntu, Fedora, Microsoft Windows
- **Other:** HTML/CSS, Visual Basic, Lex, Yacc, LaTeX

HOBBIES

- Playing “Gully” Cricket, Table Tennis, Badminton
- Inline Skating