

RESUME

Hrishikesh Karambelkar

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Professional Summary

- Total 3.5+ years of experience in software development and 1 year of experience in telecom
- 1.5+ year of experience as a Software Architect in application design and development
- 2 years of experience in a research position with the database group, IIT Bombay
- Implemented a database search engine with Prof. S. Sudarshan and Prof. Soumen Chakrabarti and my work has been published in International Conference on Data Engineering 2003
- Knowledge and experience in keyword search, query optimization, transaction processing, Information Retrieval and database design, fine grained access control

Education

Bachelor of Engg.
2001

Shri Guru Gobind Singhji College of Engineering & Technology

Computer Science and Engineering

Cumulative Average: 74.34 % (Distinction)

Diploma in Engg.
1997

Bharti Vidyapeeth's Institute Of Technology

Industrial Electronics

Percentage: 65.51 % (First Class)

Work Experience

Nov 2004 - Present

Oracle India (Senior Member Technical Staff)

- Working in the development team of Server Technology group
- One of the leading contributors of integration of workflow of Oracle's BPEL [Business Process Execution Language] process Manager with Oracle's Portal
- Designing and developing the techniques to integrate these two products at different end points.

Jan 2003 - Oct 2004

DeusCo Technologies (Member of Core Team)

- Responsible for design of registry structure, registry API, URN design and traversal algorithms
- Lead many projects including browser-based, programmable XML WYSIWYG editor, hierarchy engine, contextual search engine
- Critically evaluated many W3C/oasis-open standards including BPML, RDF, XRI and research literature on transactions in databases, resource management.

Nov 2001 - Dec 2002

Database Research Group, IIT Bombay (Research Assistant)

- Mainly worked in the area of keyword searching in databases, information retrieval and query optimization.
- Devised and implemented different mechanisms and algorithms for improving performance and accuracy of search engine

Aug 2001- Nov 2001

Department Of Computer Science, IIT Bombay (System Administrator)

- Managed a network of 200+ computers, 1000+ users, setup and supported firewall, DNS, DHCP, Apache, mail services, NFS, NIS, on department servers
- Administered Solaris, HP-UX, Linux, Windows Servers, mainly on RedHat Linux

May 1997 - Aug 1998

M/s. Phones and Pagers (Senior Service Engineer)

- Performed chip level maintenance of telephones, EPABX and answering machines, studied different telephone circuits and developed a generic circuit to transform "Redial" into "Flash"
- Selected as the best employee for the year 1997-1998

- Sept 2004- Present **NIIT Limited**, New Delhi (Subject Matter Expert)
- Designed and reviewed the course “Advanced Database Design and Development” for NIIT
 - Designed the course “Database Design and Development” for NIIT
- May 2000 - July 2000 **M/s Matrix Systems and Services** (Summer Intern) Trainee Engineer

Projects

Browsing AND Keyword Searching in databases [BANKS] (2002-2003) (10 months)

<http://www.cse.iitb.ac.in/banks>

Database Research Group, IIT Bombay

The BANKS system enables keyword-based search on databases, together with data and schema browsing. BANKS enables users to extract information in a simple manner without any knowledge of the schema or any need for writing complex queries. BANKS uses something similar to Google's PageRANK to assign prestige to nodes.

- Surveyed various research literature in the area of keyword searching in databases
- Conceptualized and developed new query models and algorithms for ranking relevance in search
- Contrived the new user friendly display of results with relations folded inside(Folded Views)
- Designed new data structures, procedures to optimize time and space complexity
- Ported the inflexible BANKS code to a database independent, multi-database search code
- The entire BANKS code is implemented using Java Servlets and JDBC. The source exceeds more than 12000 lines. This project is ported on resin and apache2.

Browser based in-place WYSIWYG XML Editor (2004) (ongoing)

<http://www.cse.iitb.ac.in/~hrishi/projects/editor/demo.swf>

Deusco Technologies, Business Incubator Cell, IIT Bombay

With this editor, authenticated users can edit parts of heavily structured XML islands with required competence of Microsoft Word. It validates XML with XML Schema (XSD), applies XSLTs over XML data and transforms it to a user presentable WYSIWYG view. It uses XSLT templates without any need to adapt them. It is completely based on open standards.

- Leading the project
- Studied W3C standards for XML, XSD and XSLT, Microsoft XMLDOM, existing editors
- Completely developed this software design. algorithm and architecture specification, UI
- Maintained version control, incremental backup of the project

Bidirectional Proximity Search in Graph Databases (2003-2004) (7 months)

Database Research Group, IIT Bombay

Relational XML and HTML data can be represented as graphs with entities as nodes and relationships as edges. The common representation enables novel data integration applications. The bidirectional search algorithm enables the users to get the results very fast in the most relevant order. The new keyword query model gives the expressiveness of regular expressions to the end users.

- Improved the search quality by developing the concept of spreading activation
- Conceived, designed and implemented the novel bidirectional search algorithm
- Extended a query search by proposing a class of proximity queries
- Devised a model for scoring proximity based on spreading activation
- Enhanced keyword query model further by allowing users to specify approximate twig patterns
- Developed the prestige calculation formulae to get more relevant answers on top
- Implemented on the BANKS platform with Java Servlet and JDBC. Code size exceeds 15000 lines.

Distributed Query Optimization on volcano query optimizer (2002) (2 months)

Database Research Group, IIT Bombay

This Project addressed the problem of query optimization in a distributed environment. The query optimization was done centrally however the execution of the plan was distributed. I used Volcano query optimizer to experiment my algorithms. The overall optimal plan was generated after considering the capabilities of heterogeneous data sources, location of the data etc.

- Studied the existing Volcano Optimizer Code
- Issues involved query optimization in heterogeneous environment with varying query capabilities
- Used a rule based approach for expressing the capabilities of various participating data sources
- Modified the volcano query optimizer to work in heterogeneous environment

Multitasking in DOS (2001)

(3 months)

Undergraduate Mini Project

DOS is a single user, single tasking operating system. The intension behind this project was to study the DOS architecture and to convert it to a multitasking operating system. To achieve this, we used the concept of TSRs (terminate and stay resident) in C language. The complete project was developed using C programming language and x86 assembly language. The size of the source exceeds 7000 lines of code.

Multicasting on the Internet (2001)

(4 months)

Undergraduate Major Project

Multicasting offers certain advantages over traditional approaches like bandwidth utilization, reduction in network traffic, efficient network resource consumption etc. Our objective was to demonstrate the advantages gained by multicasting over the real time multimedia data (rtp/rtsp) on the Internet. The project was implemented using java, JMF, multicast libraries.

- Developed the algorithm to multicast video data streaming over the tree structured network
- Extended this project further to incorporate support for multicasting data reliably over the unreliable network
- Demonstrated one application of reliable multicasting by implementing this protocol for regular software update mechanisms

Other Projects

- Contextual Search Engine (for advanced search on different data sources)
- Hierarchy Engine and Document Access Control
- An interpreter and expression tree generator for Little Quilt using flex and bison. Little Quilt is a very small language for designing quilts
- LZ file compression algorithm in C++
- Intelligent slide show software using Java
- 8085 Simulator in C

Expertise

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|--------------------------|--|
| Languages | C, C++, latex, Unix Shell Programming, Intel 8085/8086 assembly language, javascript, Python, Perl |
| Java Technology | java, JDBC, Servlets |
| Databases | Oracle, postgresql, IBM DB2 UDB, MS SQL Server, MySQL, Oracle's PL/SQL |
| Methodologies | Object Oriented Design and Programming, Design patterns |
| XML | XML, XSL, XSLT, DTD, XSD, XPATH, SOAP, BPML, RDF |
| Web Technology | CGI, PHP, ASP |
| Operating Systems | Linux, FreeBSD. Sun Solaris, HP-UNIX, Microsoft Windows |
| Tools | Apache/ tomcat, resin, orion, sendmail, NFS/NIS, Squid, named, CVS, ant |

Awards and Achievements

- Qualified GATE-2001 with all India Rank 123
- Stood 2nd in the university in Computer Science & Engineering. in third year
- Ranked among top 5 students in the class of 70 for all three years of under graduation
- Selected as the best employee of M/s Phones and Pagers for the year 1997-1998
- Member of organizing committee of SecNet '01, a workshop dedicated to Network and Security by SIGNET group, IIT Bombay
- Short listed as a scientist-C in BARC Training School and scientist-D in Plasma Research Institute, Ahmedabad in year 2002

Publications

B. Aditya, Soumen Chakrabarti, Rushi Desai, Arvind Hulgeri, Hrishikesh Karambelkar, Rupesh Nasre, Parag, S. Sudarshan, User Interaction in the BANKS System: A Demonstration In Proc. of 19th IEEE Intl. Conf. on Data Engineering '03 (ICDE), Bangalore, India, March 2003

Hrishikesh Karambelkar, Danesh Tarapore, Reliable Multicasting on the Internet, a report published in a technical journal Quasar -2001.