

Maniratan Singh Naorem

Date of Birth : 21st July 1982 Gender : Male
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Presently in the 9th Semester of the 5 year M.Tech Integrated course in Mathematics and Computing in the Department of Mathematics, Indian Institute of Technology, Delhi.

Education

YEARS	DEGREE	INSTITUTION	MARKS / CGPA
2000 - 2005	M.Tech Integrated	Indian Institute of Technology, Delhi	7.0 / 10.0
1998 - 2000	A.I.S.S.C.E (C.B.S.E)	Delhi Public School, Mathura Road, New Delhi	87.6%
1991- 1998	A.I.S.S.E (C.B.S.E)	Ramakrishna Mission Vidyapith, Deoghar, Jharkhand	85.8%

Academic Achievements

At I.I.T. Delhi

- Qualified the Graduate Aptitude Test of Engineering-2004 with All India Rank 113
- C.G.P.A: 7.0 on a scale of 10.

At school

- Selected for Indian National Chemistry Olympiad in 1999.
 - Was in the top 1 percent out of 20923 candidates enrolled in the National Physics Olympiad-1999.
 - Received a certificate of merit for being in the top 0.1% in mathematics in All India Senior Secondary Examination-1998.
 - Scholar badge holder and Cup Holder for Physics in 1998-2000.
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Technical skills:

Programming Languages : Java, C++, C, Perl, Matlab, Fortran
Platforms : Windows, Linux, Solaris, Unix
Scripting Languages : HTML, XML, JavaScript, XSL, php
Others : OpenGL, Latex, MPI, OpenMP, SML, SQL, rlinux

Work Experience.

1. Internship June, 2004 - August, 2004

Name of the institute: Army High Performance Computing Research Center, University of Minnesota, USA

Project specifications:

Prediction of Land Temperature based on sea temperature and pressure using data mining techniques.

The project includes clustering of points on the earth based on temperature and pressure data. The second part is the prediction of the land temperature using classification models. It involves proper understanding of the various climate models developed and used presently.

The project was a part of the climate modeling and was sponsored by NASA. The handling of data was mainly done in matlab and programming was done in Perl.

Co-authored a paper with the preliminary results of the research for the KDD workshop 2004.

Project Supervisor: Prof. Vipin Kumar, Director Army HPC Research Center, University of Minnesota, USA

2. Internship June, 2003 - August, 2003

Name of the institute: CRAFT, EPFL (Ecole Polytechnique Federale de Lausanne), Switzerland

Project specifications:

The project was the development of a Project Manager Module using Postnuke. The software is supposed to be used to facilitate the management of various projects assigned to students of EPFL. The module can be imported on other platforms including PCs, PDAs, Mobile Phones. The project was developed using php, xml, xsl and JavaScript.

Project Supervisor: Prof. Pierre Dillenbourg, Head CRAFT, EPFL, Switzerland

Other Projects

- Master Project:
Presently working on “Content Based Information retrieval from web”
Project Supervisor: Prof. Lipika Dey, Mathematics Department, IIT Delhi
 - Parallel Computing:
 1. Built an 8-Node Beowulf Cluster as a part of the summer project (May- July 2002). Used MPI on Linux (Mandrake 8.0) OS platform. Led the team of 4 batch mates in the development of the cluster and testing with several benchmarks including SKaMPI, Netpipe, Netperf, Pallas, NAS, and 2nd Degree PDEs.
 2. Implemented various models of Matrix Computations on Parallel Computing Environment (Using MPI and OpenMP).
 3. Developed a parallel code for 2-dimensional FFT (Fast Fourier Transform) using 1-dimensional FFT functions using C with MPI on Solaris.
 - Computer Networks:
 1. Studied and analyzed dynamic load balancing problem as an extension of the project of ‘Developing a Beowulf Cluster’.
 2. Socket Programming for Unix Machines in C and Java.
 3. Simulations of Sliding Window Protocols using IPC in C.
 - Digital Image processing:
 1. Worked on a project on Image Processing in Fingerprint Analysis. Developed a program to match fingerprints after preprocessing the input images.
 2. Implemented the Decoder for JPEG image format. Studied the Jpeg Encoding algorithm and also simulate the JPEG encoding for a better understanding of the algorithm.
 - Operating Systems:
 1. Developed a server-client chat program using inter-process communication. Shared memory and inter-process communication were used to synchronize the chat program. Users can register, login, chat or exit the Chat.
 2. Developed a personal I/O library for C language. Successfully implemented the basic file I/O functions (stdio.h) using System calls.
 3. Developed a multi process file-copy program using inter-process communication (Semaphores). The race-condition was efficiently handled.
 - Algorithm and Data Structures:
 1. Implemented the Dijkstra's algorithm and Kruskal's algorithm in C++ and Java respectively
 2. Implemented the various Data Structures like 2-3 trees, AVL trees, R-B trees and B-trees in JAVA. Develop software for different data structures with GUI, which allow adding, deleting, searching, displaying and storing the records depending upon the type of field and tree type selected by the user.
 - DBMS and Data Mining:
 1. Developed a Supermarket Software to maintain the Store information. It consists of a GUI based front end and has SQL databases (MS-Access, Postgresql) at the back end. It allows the general database operations like Slice & Dice, Drill down, roll up, and multi-dimensional table for viewing the data.
 2. Developed a Train Simulation software using JAVA. The user can select/create time-tables, add new trains, modify train-schedules. The final simulation is executed on an applet.
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Extra-Curricular Activities

At I.I.T. Delhi

- I was the Hostel Representative (2001), Secretary (2002) and Chairman (2003) of the Fine Arts Club, IIT Delhi
- Organized the Fine Arts Club Events in the Rendezvous (IIT Cultural Fest) 2002.
- Member of the Football Team for the Nilgiri Hostel

At School

- Member of the School Football Team, Participated in the Inter public Schools Football Championship at Baroda, Gujarat in 1998.

Interests (Hobbies)

- Playing Soccer, badminton.
- Martial Arts.
- Traveling,
- Sketching.

Important courses undertaken (at I.I.T. Delhi)

- **Computer Science**

Computer Graphics	Digital Image Processing
Computer Networks	Data Structures
Parallel Computing for Engineering Applications	Analysis and Design of Algorithms
Operating Systems	Software Engineering Signals and Systems
DBMS and Data Mining	Theory of Computation

- **Electrical Engineering**

Electronic circuits	Digital electronic circuits
Computer Organization and Architecture	Signals and Systems

- **Mathematics**

Discrete mathematical Structures	Differential Equations
Boundary Value Problems	Probability Theory and Stochastic Processes
Linear Algebra	Modern Algebra
Statistical Methods and Algorithms	Optimization-Methods and Applications
Algorithms in Mathematical Programming	Numerical Methods and Computation
Computational methods for Differential Equations	Real and Complex Analysis
Topology and Functional Analysis	Finite Elements Theory and Applications

- **Others**

Simulation of Bio-processes	Numerical simulations of Atmospheric phenomena
Sociology	Technical Communication
