

## Curriculum Vitae

### Neeraj Kumar

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A computer enthusiast, interested in problem solving, aiming to build a career of research in Computer Science.

#### **Research Interests**

I am interested in Computer Systems research, particularly in designing and understanding the theoretical foundations of Parallel and Distributed systems.

#### **Education**

- **Bachelor in Technology, Computer Science and Engineering**  
[Indian Institute of Technology, Banaras Hindu University Varanasi, India](#)  
Graduation Year : 2010  
CGPA: **8.69 / 10** (*on absolute scale*)  
Departmental Rank: **4** out of **51** students.
- **Other**  
Intermediate (10 + 2), CBSE Board  
Year :**2006, 93.2 %**  
High School (Xth), CBSE Board,  
Year : **2004, 92.8 %**

#### **Work Experience**

- **Currently**, Research and Development Engineer at [Mentor Graphics](#), Noida Development Center. Working for Veloce Compiler Team, Responsibilities include developing efficient solutions/algorithms, mainly dealing with routing, handling issues and feature requests.  
Duration: July 2010 – Now.
- **Summer Intern, Mentor Graphics (Summers 2009)**  
Worked on automating and improving the Veloce compiler regression testing infrastructure. Was offered a permanent position in the organization due to my contributions to this project.
- **Summer Intern, Infineon Technologies (Summers 2008)**  
Worked with Infineon wireline division. The task was to improve the build system of the embedded linux distribution for the wireless routers.

#### **Special Achievements**

1. Selected for Google Summer of Code 2010, an annual opensource software development contest organized by Google..
2. Qualified [IIT-JEE](#) 2006, one of the most prestigious and toughest examinations of India conducted by IITs and was ranked among top 1% of about 0.3 million applicants.
3. Was among top 5 of about 500 students enrolled in first year of the course.
4. Received Indian Oil Scholarship for undergraduate studies (2006-2010).
5. Received CBSE merit Scholarship for excellent performance in class XIIth board examinations.

## **Projects**

- As part of my Undergraduate Major Project I have worked on TCP/IP Protocol stack development using design patterns for [ES Operating System](#) Open Source project. ES's TCP/IP stack is essentially based on the Conduits+ framework laid out in “A Framework for Network Protocol Software, by Hui, Johnson, Engel, 1995 ”. I explored this design and extended it to add the support for ARP caching and ICMP Redirect.
- As part of [Google Summer of Code 2010](#), I worked as a developer for ScummVM, an open source Game Virtual Machine. I had implemented a Game Engine, that could invoke and test various ScummVM subsystems.
- As my junior year minor project, I had implemented a distributed caching proxy server. The idea was essentially based upon “Adaptive Distributed caching by kaiser, Tsui, Liu, 2002”.
- Wrote an architecture-aware parallel implementation for Template Matching Algorithm exploiting Intel SIMD instructions. This resulted in close to 200X improvement compared to the sequential implementation.
- Implemented a tiny simulator for verilog designs. The simulator would take verilog description of a basic combinational circuit, and would produce output vectors corresponding to various input combinations fed from command line.
- Implemented the Heterogeneous Earliest Finish Time (HEFT) Task Allocation Algorithm in parallel environment using Message Passing Interface (MPI).
- Developed a Java based Online Crime Reporting system for submission to IBM's The Great Mind Challenge. The project made to the finals of the contest.

## **Technical Skills**

- Have worked with pretty much legacy code, and therefore capable of delivering efficient solutions in short time.
- C++ is the programming language of my choice. Besides, I have programmed in C/Perl and Java.
- Acquainted with the elements of object oriented programming, writing efficient, reusable, and maintainable code, Design Patterns.
- Well conversant with GDB. shell scripts (Bash, C Shell)
- Well conversant with version control, and other linux tools namely, make, awk, sed etc.
- Acquainted with web application development, Java Servlets, JSP, Javascript/HTML/CSS, Databases (IBM DB2, MySql)
- Have exposure to Parallel Programming with Message Passing Interface (MPI).

## **Miscellaneous**

- Have won various Quiz Contests and Programming events at school and college level.
- Have good communication skills in English/Hindi, and can understand some french.
- Web Presence here at [sud03r.github.com](http://sud03r.github.com) .