

# Kunal Singhal

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## Education

### Indian Institute of Technology Delhi

*Bachelor of Technology*

CGPA: 9.56

New Delhi, India

2012 - 2016 (*expected*)

## Relevant Courses Taken

Computer Architecture

Data Structures

Calculus and Analysis

Programming Languages\*

Probability Theory and Stochastic Processes\*

Algorithms#

Design Practices in Computer Science

Discrete Mathematical Structures

Linear Algebra and Matrices

Numerical and Scientific Computation\*

Cryptography#

Digital Electronic Circuits

Combinatorics

Quantum Physics\*

Artificial Intelligence\*

Machine Learning#

\*Pursuing in spring 2014 #Online Courses at coursera.org

## Projects and Papers

### • 3D bike race game

- Used OpenGL as graphics library.
- A dedicated physics engine was programmed.
- A database for High Scores is maintained.
- Used frustum culling for enhancing the game speed.

Prof. Subodh Kumar, 2012

### • Single Cycle Processor Design

- A single cycle risc processor was designed using VHDL
- The design implements simpleRisc ISA which is much similar to ARM ISA

Prof. Smruti Ranjan Sarangi, 2012

### • Assembly Emulator

- Supports ARM assembly and SimpleRisc Assembly codes.
- Supports free flow of the code.
- Python's high order techniques like lambda functions, maps and filters used for programming the emulator.

Prof. Smruti Ranjan Sarangi, 2012

### • Walsh Codes, PN Sequences and their role in CDMA Technology

- The paper outlines the basic of walsh codes and explores the mathematical aspect of Walsh codes as Finite Vector spaces. Also, it discusses properties and implementation of various PN sequences and then describes their role in CDMA Technology.

### • Social Network Simulation and Analysis

- Multiprocessing and multithread used to achieve simulation.
- Inter process communication is established by Message Queues
- Final network after the simulation is stored as a graphml file.
- In the analysis of the network, various queries such as shortest path, importance and clique size can be performed.

Prof. Subodh Kumar, 2012

## Sport Programming

- Indian team member in **International Olympiad in Informatics, 2012**
- My team (team Angle) **ranked 9th in ICPC Amritapuri Regionals**. Best in IIT Delhi.
- TopCoder: {rating: 1531, handle: knsn1994}; Codeforces: {rating: 1740, handle: knsn};

## Awards, Grants & Honours

<b>International Olympiad in Informatics 2012</b> Indian Team Member	JULY 2012
<b>International Physics Olympiad 2012</b> Silver Award	JULY 2012
<b>Asian Physics Olympiad 2012</b> Silver Award	MAY 2012
<b>Indian National Mathematics Olympiad 2011</b> All India First Position	2011
<b>Institute Silver Medal for Academic Excellence</b> Given for obtaining highest CGPA at IIT Delhi	FEB 2013
<b>IIT-JEE 2012 All India Rank 18</b> Got 18th rank among more than 500,000 students	MAY 2012
<b>Aditya Birla Scholarship 2012</b> Given only to 15 engineering students all India	SEP 2012
<b>OP Jindal Engineering and Management Scholarship 2012</b> Given to one student of each Year	SEP 2012
<b>KVPY Scholarship 2011</b> Scholarship given for encouraging science students	2011
<b>AIEEE 2012 All India Rank 19</b> Got 19th position among over 1 million students.	MAY 2012

## Designing and Coding Skills

<b>Extensive</b>	PYTHON, C++
<b>Intermediate</b>	HTML5, CSS3, JAVASCRIPT, C, PHP, L <sup>A</sup> T <sub>E</sub> X, JAVA, SQL, BASH, NUMPY
<b>Basic</b>	DJANGO FRAMEWORK, APPLE SCRIPT, STANDARD ML, BASIC, PERL

## Community Involvement

- Representative at ACES (Association of Computer Engineers, IIT Delhi)
- Member of Coding Club, IIT Delhi
- Member of Electronics Club, IIT Delhi
- Class Convener at IIT Delhi

## Other Interests

- I have keen interest in human psychology and philosophy. I also write a blog: Tenet.
- I love to play Guitar and Synth.
- I am a part of my hostel Dance Club.