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Education

Degree / Certificate	Institution	CPI / Percentage
B.T, Computer Science and Engineering (2015)	IIT Kanpur,India	7.8 / 10.0*
Class 12 : CBSE Board (2011)	KV 2 GCF, Jabalpur	88.8%
Class 10 : CBSE Board (2009)	KV 2 GCF, Jabalpur	91.6%

*after completion of 6 semesters

Scholastic Achievements

- Achieved an **All India Rank (AIR) 210** in **IIT-JEE'11** in which nearly 5Lac students appeared.
- Secured **AIR 17 Rank (State Topper)** in **AIEEE'11** in which nearly 11Lac students appeared.
- Secured AIR 18 in 13th National Science Olympiad *(2010 – 11).*
- Secured AIR 54 in 12th National Science Olympiad *(2009 – 10).*
- Secured AIR 65 in 10th National Cyber Olympiad *(2010 – 11).*
- Secured International Rank 147 in 4th International Mathematics Olympiad *(2010 – 11).*
- Secured AIR 155 in 9th National Cyber Olympiad *(2009 – 10).*
- Secured AIR 558 in 10th National Science Olympiad *(2008 – 09).*
- Secured AIR 32 in KV JMO, class 10th *(2008-09).*

Algorithmic Programming

- **ACM-ICPC** regionalist *2013*, Kanpur region.
- **ACM-ICPC** regionalist *2013,* Amritapuri region.
- My team secured overall 15th rank (1st from IIT Kanpur) in IOPC, Techkriti'14, IIT Kanpur.
- My team secured 2nd prize at XCEED'13 (optimization problem contest), organized by Kurukshetra'13, Anna University.
- My team came 2nd in Instant (Algorithmic programming contest), organized by Techkriti'13, IIT Kanpur.
- Best rating of **1385** in algorithm competitions at **Topcoder** (Handle: bhupkas).
- Best rating of **1710** in **codeforces** (Handle: bhupkas).
- World rank in top **600** at **Spoj** among more than 130, 000 registered users. (Handle: bhupkas).

Internship

Summer Intern Project at Samsung Research Institute , Noida   (May '14 – July '14)
- Improvised Linux kernel 3.4.5 for **IPv6 android CTS test**.
- Analyzed the complete packet flow through linux kernel for RX and TX packets.
- Developed **Android application** to ping devices on IPv4 and IPv6 addresses using socket communications.
- Designed python script to parse and find C functions and add desired statements in a file.

Projects

Multiclass Object Classification   (Aug '14 - ongoing)
Undergraduate project under Prof. Vinay Namboodiri, IIT Kanpur
- Aim is to classify huge set of images into one of given thousand classes using **Machine Learning** techniques such as **Exemplar SVMs.**
- Image is represented as a vector containing maximum scores of each **Classifier Patch** in each dimension.

Compiler for C#: Compiler Design   (Jan '14 – April '14)
Compilers course project under Prof. Subhajit Roy, IIT Kanpur
- Built a C# compiler in C, which generates code for SPIM architecture.
- The final compiler had support for **basic data types, composite date** types like multi-dimensional arrays, **operators, statements, functions (pass by reference and value, recursion)**.
- Input programs passes through four analysis stages (**lexical analysis, syntax analysis, semantic analysis, and code generation**) to give assembly code for SPIM.

Document Clustering for Hindi and English documents (Jan '14 – April '14)

Artificial Intelligence course project under Prof. Amitabha Mukherjee, IIT Kanpur
- Clustered Hindi and English documents into various groups using **k-means** clustering algorithm.
- The preprocessing was done by removing the stop words , stemming the similar words to a single word and then using then using the **Bag of Words** model for document representation.
- Similarity measures used for measuring the distance between documents are **Euclidean , Cosine , Pearson , Jaccard , Manhattan** and **Chebychev.**

Extention of NachOS (Aug '13 – Nov'13)

Operating System course project under Prof. Mainak Choudhary, IIT Kanpur
- Implemented **syscalls** such as **fork**, **execv** , **join** , **sleep** on NachOS.
- Implemented **shared memory** along with semaphore support and virtual memory to run large programs.
- Implemented **page replacement algorithms** and **process scheduling algorithms** such as **random** , **FIFO** , **round-robbin** and **shortest job first.**

Packet Sniffer (Aug '13 – Nov'13)

Computer Networks course project under Prof. Dheeraj Sanghi, IIT Kanpur
- Implemented a packet sniffer in C which works on LAN as well as Wifi.
- Based on parameters given , we can filter packets based on protocol type , length , interface type , destination.

Smallest Enclosing Circle (May '13 – July '13)

Summer project under Prof. Surender Baswana, IIT Kanpur
- Implemented the existing **randomized algorithm** for finding the smallest enclosing circle of given points in a plane.
- Analyzed the algorithm experimentally, and proved the **average linear time complexity** of the algorithm experimentally.
- Designed **online applets** which shows how the algorithm works.

8-bit programmable computer on FPGA (Jan '13 – April '13)

Computer Architecture course project under Prof. Subhajit Roy, IIT Kanpur
- Built 8-bit programmable **general purpose computer on FPGA** using Verilog as hardware description language.
- The computer could perform basic **arithmetic and logical** operations on 2 inputs.
- Using these instruction set , functions like **Fibonacci(n)** , **Factorial(n) ,** uptimer and downtimer were implemented.

Jigsaw Puzzle (Jan '13 – April'13)

Computing Laboratory under Prof. Arnab Bhattacharya, IIT Kanpur
- Designed Jigsaw Puzzle, in which user can drag the pieces and put them in their correct places to win the game.
- Algorithm was implemented in python and the GUI was provided using Pygame.

Card Game 29 (May'12 - July '12)

Summer project under Programming Club, IIT Kanpur
- Developed a computer version of the card game 29, which provides an interface to play the cards.
- A single user plays against **three computer players**.
- Used elementary **Artificial Intelligence algorithms** to design the moves of the computer players.
- Provided GUI using wxPython.

Genetic Programming (Jan'12 - April'12)

Semester project under Association of Computing Activities, IIT Kanpur
- Implemented a genetic algorithm to solve the **Brachhistochrone Problem**.
- Took random sample and genetically improve them, till we get an almost optimal solution.

Technical Skills	
Programming Languages	C, C++, Python
Web	HTML,CSS, JavaScript, PHP,mysql
Platforms	Windows, Linux , Android
Tools	Latex, Beamer, Make, Shell, GNU Octave, wxPython, PYgame

Relevant Courses

- Operating Systems
- Computer Networks
- Compilers
- Theory of Computation
- Randomized Algorithms
- Artificial Intelligence
- Design and Analysis of Algorithms
- Intro. to Computer Organization
- Probability and Statistics
- Discrete Mathematics
- Data Structures and Algorithms
- Introduction to Mathematical Logic
- Fundamentals of Computing

Positions of Responsibility

- **Student Guide, Counseling Service**, IIT Kanpur for academic year 2012 – 13
  - Mentored 6 freshmen students and assisted them in getting familiar to the college environment.
  - Assisted in the successful organization of the orientation programme for the benefit of around 880 students in IIT Kanpur.

- **Senior Web Executive, Techkriti'13,** IIT Kanpur.
  - Contributed in designing and developing the main website for the Annual Technical Festival of IIT Kanpur, Techkriti'13.

- **Assistant Coordinator, Software Corner, Techkriti'13,** IIT Kanpur.
  - Managed various events under Software Corner.
  - Contributed in designing the problem statements for the events.

- **Pool Captain, Takneek'13.**
  - Supervised scientific and technological events from Rajput pool, consisting of 3 hostels and ensured healthy participation.

- **Hall Captain, Takneek'12.**
  - Supervised the hall level scientific and technological activities during Takneek'12 and led contingent of over 200 participants to victory with greatest margin ever recorded in IIT KANPUR technical fest.

Extra-curricular Activities

- Won 3rd prize in design competition, HUL CODE, conducted by Hindustan Unilever Limited, where we designed products catering to the future needs of the customers.
- Participated in robotics events in Takneek'11, where the robot had to perform 3-d space manipulation and object recognition.
- Won 2nd prize in Weekend Programming Contest organized by Programming club, IIT Kanpur.