Aditya Modi

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Education

Year	Degree/Certificate	Institute	CGPA/Percentage
2016 (expected)	B.Tech.	Indian Institute of Technology, Kanpur	9.2/10 (4 semesters)
2012	AISSCE, XII (CBSE)	Aklank Public School, Kota	90.40%
2010	AISSE, X (CBSE)	Holy Hearts Educational Academy, Raipur	9.8/10

Scholastic Achievements

- Awarded the **Academic Excellence award** for the year 2012-13 by **IIT Kanpur** for exceptional performance.
- Secured All India Rank **132** in **IIT-JEE** 2012 out of around **5 lakh students**.
- Secured All India Rank **150** in **AIEEE** 2012 out of around **12.5 lakh students**.
- Recipient of **O.P. Jindal Engineering & Management Scholarship (OPJEMS) 2012** award.
- Qualified and received honorable mention for **ACM ICPC Asia Amritapuri Regionals** in 2013-14.
- Qualified and received honorable mention in **ACM ICPC Asia Kanpur Regionals** in 2013-14.
- Qualified for Indian National Astronomy Olympiad (INAO) 2012, INPhO (Physics) 2012 and INChO (Chemistry) 2012.
- Awarded **National Talent Search Scholarship** by MHRD, India in 2008.

Areas of Interest

Machine Learning, Algorithms and Data Structures, Convex Optimisation.

Research Projects

Relaxed Hierarchical learning using SVM's *July '14 to till date*

Research Project(CS395) under Prof. Vinay Namboodiri (Asst. Professor, IIT Kanpur)

- AIM: Improvise the known hierarchical learning methods to create an accurate as well as computationally efficient classifier for large-scale learning.
- Working on devising a hierarchical learning algorithm using DAGSVM as base learning method.
- Using the Caltech-256 dataset and overfeat feature extractor for experiments.

Optimised Video Survellience System *May '14 to July '14*

Research Project under Prof. Harish Karnick (Professor, IIT Kanpur)

- AIM: Build an improvised video surveillance system **to be set up at IIT Kanpur campus**.
- Studied background subtraction techniques, ensemble learning and classification methods for frame extraction in video data.
- Implemented a real-time system for adaptive background subtraction using Gaussian Mixture Model (MOG).
- Implemented Viola-Jones object detection framework for vehicle-classification.
- Worked on ensemble model of MOG using frame features and hierarchical learning for object detection.

Other Projects

Mail Classifier *May '13 to June '13*

Summer Project under Programming Club, IIT Kanpur

- Created an automated mail classifier based on bag of words model on a labeled dataset.
- Used the publicly available Enron corpus for experimental results.

- Studied and implemented various supervised learning algorithms like Multiclass-SVM, Naive Bayes, Random forests.
- Acheived an accuracy of upto 80% on balanced datasets.
- Testing and classification module built using python, python-nltk, scikit-learn, weka. Built Gmail webapp using Google App script.

Study of Splay Trees *Oct '13 to Nov '13*

Advanced track project: Prof. Sumit Ganguly (Professor, IIT Kanpur) for Data Structures and Algorithms (CS210).

- Surveyed existing literature about splay trees and their different implementations.
- Studied methods for amortized analysis and application of splay trees in dynamic graph algorithms.
- Implemented a bottom-up splaying routine of splay trees in C++.
- Received A* grade for exceptional performance in the course and the project work.

Oz programming language interpreter *Aug '14 to Sept '14*

Course project: Prof. Satyadev Nandakumar(Asst. Professor, IIT Kanpur), Principles of Programming Languages(CS350).

- Implemented a meta-circular interpreter for a declarative sequential model of Oz.
- Implemented the semantic stack and single assignment store using an easy-to-parse abstract syntax tree.

Relevant Courses

Data Structures and Algorithms - A*
Fundamentals of Computing - A*
Computing Laboratory-I
Mathematics II (Linear Algebra) - A*
Probability And Statistics
Mathematics for CS - I (Discrete Mathematics)
Mathematics for CS - II,III (Logic and group theory)
Operating Systems#
Algorithms II#
Theory of Computation#
Computing Laboratory-II#
Principal of Programming Languages#
Inroduction to Computer Organization

#*-current courses*

Technical Skills

- **Programming Languages:** C, C++, Python, Oz
- **Web Development:** Javascript, HTML, CSS, SQL
- **Others:** LaTeX, Octave, Bash scripting, Matlab, Weka, Git
- **Platforms:** Windows, Linux (Debian, Ubuntu)

Miscellaneous

- **Academic Mentor, Institute Counselling service** - Responsible for taking hostel level classes and personal mentoring sessions for students facing difficulties in **ESc101 - Fundamentals of Computing** for the year 2013-14.
- **1st Position, Chaos, Techkriti '13** - the contest was a part of the annual technical festival of IIT Kanpur and involved programming in an esoteric language given at the spot to solve few algorithmic problems.
- Followed courses on machine learning and linear programming on Coursera, Edx.
- Studied methods related to graph drawing heuristics for planar graphs under an activity by Association of Computing Activities, IIT Kanpur.
- Awarded **best sectional project** for making a spaceship prototype in Manufacturing Processes - 1 course project.