

ADITI SINGLA

Computer Science and Engineering
Indian Institute of Technology, Delhi

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ACADEMIC DETAILS

Year	Degree	Institution	CGPA/Percentage
2014-2019 (Current)	B.Tech. & M.Tech in Computer Science and Engineering	Indian Institute of Technology Delhi	8.7/10
2014	Class XII, CBSE	D.A.V Public School, Kota, Rajasthan	95.6%
2012	Class X, CBSE	Atomic Energy Central School No. 4, Rawatbhata, Rajasthan	10/10

SCHOLASTIC ACHIEVEMENTS

- Certificate Of Merit awarded for being in Institute Top 7% amongst 850 students in semester I, 2014-2015.
- **All India Rank 165** in **JEE Advanced-2014** amongst 150,000 candidates.
- Selected as a KVPY Scholar under '**Kishore Vaigyanik Protsahan Yojana**' administered by Indian Institute of Science, Bangalore in 2013-2014.
- Placed amongst National Top 1% students who qualified for **Indian National Chemistry Olympiad**, 2014.
- Selected as NTSE scholar through '**National Talent Search Examination**', 2010, by NCERT, Govt. of India.

INDEPENDENT PROJECTS

Indian Language BookReader

Summer Project

Prof. Arun Kumar & Prof. M Balakrishnan

May, 2016 - August, 2016

- Developed a TTS (text to speech) android application for bookreader supporting epub & pdf book formats for Hindi, English, Punjabi & Telugu.
- Implemented the complete front end (preprocess raw data, phonetic transcriptions and text-to-phenome conversion) and included features like selective text reading, zoomable interface and options to pause and resume the TTS (text to speech), in the application.
- Launched beta version among local NGOs and institutions aiding welfare of visually impaired people (our primary target group), for feedbacks and further improvements.

Software for Emotion Detection

Summer Engineering Intern

In-Store, Gurgaon

June, 2016 - July, 2016

- Developed a software in Microsoft Visual Studio, which detects the emotions of the user while watching a video, focusing on the advertisement industry, where it can be used to analyse the customers' feedback.
- The facial features identification was done using DLib and OpenCV libraries.
- The emotion detection is based on the studies done by Dr Paul Ekman, American Psychologist, famous for work on human emotions and how they reveal on micro expressions.

COURSE PROJECTS

Game player for TAK

Artificial Intelligence Course Project

Prof. Mausam

September, 2016 - November, 2016

Designed a competitive bot for a Real Time Strategy Game TAK, using minimax tree with iterative deepening search and alpha-beta pruning. Used a manually-crafted heuristic and techniques like varying the search depth according to the time left.

Resource Allocation System

Artificial Intelligence Course Project

Prof. Mausam

August, 2016 - September, 2016

Worked on the NP-Hard problem of Combinatorial Auction i.e. maximisation of revenue collection. Modelled the problem as a local search and used greedy hill climbing with random restarts and random walks. Different versions of the algorithm were run on parallel threads to obtain profitable solutions.

Network Based Multiplayer Ping Pong Game

Design Practices Course Project

Prof. Vinay Ribeiro

April, 2016

Designed and implemented a 4 player, peer to peer networking based Ping Pong game, using Swing library for graphics and TCP/IP socket programming in Java for networking. To maintain seamless continuity of the game during network outages, a player losing connection is replaced by an Artificial Intelligence bot.

Compiler for a Simple Programming Language

Programming Languages Course Project

Prof. S. Arun Kumar

March, 2016 - May, 2016

Designed a piece-wise compiler for a simple programming language using its EBNF, in SML. The components implemented were Lexical Scanner, Recursive Descent Parser (used Abstract Syntax Trees for type checking), BigInt Library for large integers and a Stack Machine to execute the low-level instructions generated by the Code Generator.

IIT Delhi Complaint System Portal

Design Practices Course Project

Prof. Vinay Ribeiro

February, 2016 - March, 2016

Developed an Android as well as web application for an institute level complaint system for IIT Delhi which would enable the faculty, the students and the staff to lodge complaints over a wide range of categories, upvote & downvote them and comment on them. Concerned authorities(3-tier system) were allowed to resolve the complaints. Key responsibility included designing and testing both the front end and the back end.

COURSES UNDERTAKEN

Computer Science, Mathematics & Electrical Engg:

Machine Learning*, Operating Systems*, Introduction to Automata & Theory of Computation*, Introduction to Distributed & Parallel Programming*, Artificial Intelligence, Computer Networks, Analysis & Design of Algorithms, Computer Architecture, Programming Languages, Design Practices, Data Structures and Algorithms, Discrete Mathematics, Digital Logic & System Design, Signals and Systems, Probability and Stochastic Processes, Calculus, Linear Algebra and Differential Equations.

**Courses currently pursuing*

TECHNICAL SKILLS

- **Programming Languages:** Java, C++, Python, SML, OCaml, HTML, JavaScript, VHDL, ARM Assembly
- **Programming Environments:** Android Studio, Microsoft Visual Studio, Xilinx ISE Design Suite, LaTeX, MATLAB, Autodesk Inventor Professional, OpenCV library

EXTRA CURRICULAR ACTIVITIES

- **Mentor, Student Mentorship Programme, IIT Delhi** (July, 2016 - Present):
 - Mentoring six freshers from two different departments, guiding them the IIT system.
- **Representative, SPIC MACAY IIT Delhi Chapter, BRCA(2015-16)**
- **Team Head, Publicity Team, Tryst 2015** (TechFest of IIT Delhi)
- **StreetPlay, Dramatics Club:** Stood first in Inter-Hostel Street Play 2014-15 conducted by the Dramatics Club.