

# PRAKHAR AGRAWAL

Undergrad at IIT Delhi

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## EXPERIENCE

Research Assistant

Aalto University (A!)

May 2016 – July 2016

Espoo, FI

- Goal: Estimation of partial charges on Atoms using Machine Learning
- Implemented Graph Neural Network to learn a map between molecular structure and partial atomic charges.
- Find report at: [www.cse.iitd.ac.in/~cs1140207/gnn\\_report.pdf](http://www.cse.iitd.ac.in/~cs1140207/gnn_report.pdf)

Software Developer

Vdocipher

May 2015 – July 2015

New Delhi, IN

- Implemented part of the Restful Service for video analytics
- Changed the underlying schema and used indexing in MongoDB to speed up the system.

## COURSE PROJECT WORK

Distributed Ledger Simulator | Prof. Smruti Sarangi

<https://github.com/Prakhar0409/Distributed-Ledger>

- Implemented a distributed P2P protocol like the one used in Bitcoin.
- Ensured Virtual Synchrony, ordered multicast & 2-phase commit txns

Distributed Hash Table Simulator | Prof. Smruti Sarangi

<https://github.com/Prakhar0409/Pastry-Simulator>

- Designed a DHT based system- Pastry (scales for > 1000 nodes)
- Implemented support for smooth node joining and leaving.

Machine Learning Course | Prof. Rahul Garg

- Handwritten digit recognition using Convolutional Neural Network
- Mini Search using Latent Semantic indexing
- News Group Classification using Naive bayes
- ML projects outside course on github

## ACHIEVEMENTS

Hackathons & Competitions

- Stood 1st at Data Analytics Hackathon: Effect of Climate change on GDP (by yobitech & EES, IITD) [[prakhar0409/GDP-Prediction-Engine](https://github.com/prakhar0409/GDP-Prediction-Engine)]
- Runner up team at Coding Blocks, Rendezvous Hackathon. Project: Brainwhack - a directed learning application that uses LSI to relate and suggest pre-requisites for topics.
- Secured 3rd position in Microsoft Algorithms held during Tryst.

Scholastic

- AIR 64 in JEE Advanced, 2014.
- KVPY Fellowship Award, 2014.
- IITD Semester Merit Award in two consecutive semesters.

## LIFE PHILOSOPHY

*"You don't fall unless you stop pedaling."*

## INITIATIVES

A-paper-a-week

to read and summarize a paper every week

Putting the bits together

a tech blog describing my journey in CS and touching over cool tech - on my website

## STRENGTHS

Hard-working

Persuasive

Team work

Motivator & Leader

## SKILLS

C

C++

Java

Python

bash

Matlab

NodeJS

Android Dev.

OpenMP

MPI

Cuda

SML

## EDUCATION

B.Tech in Computer Science

IIT Delhi

June 2014 – Ongoing

CGPA: 9.173

Junior College

Narayana Junior College, Hyderabad

June 2012 – May 2014

Percentage: 97.8%

## POSITIONS OF RESPONSIBILITY

System Administrator

working to maintain a reliable infrastructure at CSE, IITD

BSP & ACES-ACM, IIT Delhi

worked at BSP, IITD & ACES-ACM, in the past, to promote a healthy & geeky community environment

## HOBBIES

Reading

Swimming

Skating

Playing guitar

exploring new things

## OTHER INTERESTING COURSE WORK

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### HoH Labs | Prof. Sorav Bansal

- Developed parts of exo-kernal 'HoH' developed at IIT Delhi.
  - Added support for fibers, coroutines and multiple cores (2 cores)
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### SpMV in Cuda-aware-mpi | Prof. Subodh Sharma

- Implemented a highly optimized version of sparse matrix multiplication with a vector.
- Used a cuda-aware mpi to run on multiple GPUs on multiple machines.

## RELEVANT COURSE WORK

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Machine Learning Optimization Theory

Artificial Intelligence Algorithms

Advanced Distributed Computing

Parallel Programming

Operating Systems

Spcl. topics in High Speed Networks

Database Management Systems

Game Theory (Economics)