

# Prakhar Ganesh

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## EDUCATION

**INDIAN INSTITUTE OF TECHNOLOGY (IIT) DELHI**  
BTECH IN COMPUTER SCIENCE AND ENGINEERING  
2015 - 2019 | Dep. GPA: 8.18/10.0

**DAV PUBLIC SCHOOL, KOTA**  
CLASS XII, CBSE  
2015 | Percentage: 92.4%

**ST. PAUL'S SCHOOL, SIROHI**  
CLASS X, CBSE  
2013 | Cum. GPA: 10.0

## LINKS

Github:// [prakharg24](#)  
LinkedIn:// [prakharg24](#)  
HomePage:// [cs1150245](#)

## COURSEWORK

Natural Language Processing  
Machine Learning  
Artificial Intelligence  
Digital Image Analysis  
Data Mining  
Spl. Module In Artificial Int.  
Fundamentals of Language Sciences  
Computer Networks  
Parallel Computing  
Linear Algebra  
Prob. & Stochastic Processes

## IMPLEMENTATIONS

Graph Partitioning - GGPP Algo | [Code](#)  
Parallel 2D Matrix Sorting | [Code](#)  
MIPS Processor and Simulator | [Code](#)  
Mobile Network Simulator | [Code](#)  
EM Algo in Bayesian Network | [Code](#)  
Named Entity Recognition | [Code](#)  
Sentiment Analysis - Neural | [Code](#)  
Sentiment Analysis - Non Neural | [Code](#)  
Decision Tree and Neural Network | [Code](#)  
SVM and Naive Bayes | [Code](#)  
Regression and GDA Models | [Code](#)  
Clustering vs SVM vs CNN | [Code](#)

## TECHNICAL SKILLS

### PROGRAMMING LANGUAGES

C, CPP, Python, Java, OCaml, Prolog, VHDL, Visual Basic

### FRAMEWORKS

OpenCV, OpenMP, MPI, Git, Tensorflow, PyTorch, Keras, Socket, Pandas, Numpy

## PUBLICATIONS

### UNDER REVIEW

- Nucl2Vec: Local alignment of DNA sequences using Distributed Vector Representation. Submitted in IEEE BIBM 2018. Preprint [link](#).
- Deep Reinforcement Learning in High Frequency Trading. Submitted in ACM CoDS-COMAD 2019. Preprint [link](#).

## INTERNSHIPS & MAJOR PROJECTS

### BACHELOR'S THESIS PROJECT | POSE ESTIMATION AND TRACKING

Aug'18 - Present | Under Prof. Rahul Garg, IIT Delhi | [Code](#)

- Consolidation of existing DL techniques, Body Models and Vision related features.
- Our current model is performing better than every existing benchmark.
- Trying to estimate Yoga postures, which includes obscuring and unconventional extensions of the body, not possible using existing benchmarks.
- Bayesian NNs and hierarchical optical flow data for further improvement.

### DATA ANALYST | DEEP REINFORCEMENT LEARNING IN HFT

May'18-July'18 | WealthNet Advisors, Delhi

- Literature Review and Performance comparison of existing ML techniques.
- Introduced a novel way of modeling the HFT problem statement.
- Developed and tuned a pipeline based on Deep RL Models and backpropagation.
- Complete pipeline integrated to the company's trading module in C++.

### SUMMER RESEARCH INTERN | ENCODING METHODS IN GENOMICS

May'17-July'17 | Under Prof. Kolin Paul, IIT Delhi | [Code](#)

- Developed a novel encoding method, Nucl2Vec, for Genome variant calling.
- Based on Skip-Gram model, providing a distributed vector representation.
- About 3 times faster than the existing state of the art in NGS Read Alignment.
- 97% accuracy against the existing defacto standard BWA-MEM alignments.

## MINOR PROJECTS

### COMMUNITY SEARCH OVER LARGE SOCIAL NETWORKS

Aug'18 - Present | Data Mining, Prof. Sayan Ranu, IIT Delhi

- Literature Review project regarding influential community search techniques.
- Realizing its importance in social opinion mining and news propagation patterns.
- Studying different advanced graph-based and index-based search algorithm.

### ABSTRACTIVE SUMMARIZATION OF DIALOGUES

March'18 - May'18 | Fundamentals of NLP, Prof. Mausam, IIT Delhi | [Code](#)

- Pointer Generator Network and Coverage on top of Attention based model.
- Provide a graph structure to conversations from discourse relations using CRF.
- Extractive summary from graph followed by final abstractive summarization.
- BLEU scores comparable to the state of the art. Check working model [here](#).

### GENOME VARIANT CALLING USING CNN

Aug'17 - Nov'17 | Minor Design Project, Prof Kolin Paul, IIT Delhi

- Designed a novel CNN based DNA alignment model achieving good speedups.
- Integrated with DAVI (DL based Single Nucleotide Variant identification).
- Collaborated with M.Tech students to complete the variant calling pipeline.

### AUDIO TACTILE READER FOR VISUALLY CHALLENGED

Jan'17 - Apr'17 | Design Practices, Prof. M. Balakrishnan, IIT Delhi | [Code](#)

- Android App for real time finger gestures and movement detection.
- Windows app for automated data generation and mapping to Vector images.
- Presented live demo for visually challenged in IITD Open House. [Blog link](#).