

## ACADEMIC DETAILS

Examination	Institute	Year	CPI/%
Computer Science and Engineering	IIT Kanpur	2015-present	9.24
Class XII	Delhi Public School, Bhopal	2015	93.8
Class X	Delhi Public School, Bhopal	2013	10.0

## Relevant Courses:

Discrete Mathematics | Abstract Algebra Data Structures and Algorithms | Intro to Machine learning  
Operating Systems | Theory of Computation | Computational Cognitive Science\* | Learning Theory\*  
Probabilistic Machine Learning\*  
(\* : ongoing)

## HONORS AND AWARDS


Fellowships	National Talent Search Examination (NTSE), 2013 KVPY scholar, 2014	Government of India Government of India
Awards	<b>Academic Excellence Award</b> , 2015-2016 All-India Rank <b>192</b> amongst 1.5 million students Scholarship (Complete fee-waiver) 2013	IIT Kanpur IIT-JEE, 2015 DPS Bhopal

## FIELDS OF INTEREST

- Artificial Intelligence and Machine Learning
- Computer Vision : Scene Understanding, 3D modelling, Motion Capture
- Augmented reality, Natural Language Processing

## MAJOR PROJECTS

- **Language Understanding and Information Retrieval** (Under Graduate Project)  
(Guide: Arnab Bhattacharya & Amay Karkare, July'17 - Dec'17)
  - **Objective** : Creating a word problem solver for elementary maths problems
  - Implemented the model using word2vec, **coreference resolution**, **syntactic parsing** and **dependency parsing**
  - Involved natural language understanding, **world concept graph generation**, quantity association and query evaluation
  - **Github** 🐙: [github.com/varunkhare1234/word\\_problem\\_solver](https://github.com/varunkhare1234/word_problem_solver)
- **3D Reconstruction** (Research Project)  
(Self Project , May'16 - April'17)
  - **Objective** : Understand the principles of reconstruction, epipolar geometry.
  - Coded **8 point** algorithm involving RANSAC and SIFT in Matlab and created a meshlab model from images.
  - Studied Multiple View Geometry by Hartley and Zisserman and Structure from motion research papers
  - **Single View Reconstruction**: Implemented deep learning model **3D Residual Recurrent CNN auto-encoder** for single object; **Scene reconstruction** using MRF and monocular cues applied on segmented super pixels.
- **AR Navigation** (Programming Club Project)  
(Guide: Self, May'16 - June'16)
  - Created **Android** navigation app using Google Directions API and **unity3d game engine**.
  - Relayed unity graphics on camera feed according to accelerometer and gyroscope readings. GPS and magnetic compass was used to detect roads.

- Awarded **best club project** | : [varunkhare1234/augmented-reality-app](https://github.com/varunkhare1234/augmented-reality-app)
- **On Device Machine Learning** (New York Office, IIT Kanpur)  
(Jan'17 - present)
  - Worked on **CoCoA** framework and Federated Machine Learning
  - Implementation on the app using tensorflow mobile
- **Android App Dev** (New York Office, IIT Kanpur)  
(May'16 - present)
  - Implemented **SSE** notifications, Search functionality, code abstraction and **app-caching**
  - Worked on REST APIs, material UI, Continuous integration with Jenkins, **data and property binding**
  - Lead a team of 12 interns at NYO.
- **Cryptography** (Course Project *Discrete Mathematics*)  
(Guide: Prof. Nitin Saxena, July'16 - Nov'16)
  - Implemented **Elgamal** algorithm giving a demonstration of encryption and decryption in python
  - Read about encryption systems and other algorithms involved **RSA, ELgamal, Rabin-Miller**
  - **Github:** [github.com/varunkhare1234/elgamal](https://github.com/varunkhare1234/elgamal)
- **Other Projects**
  - Mentored **Depression Therapy Chat bot** as Programming Club project. Students implemented Sentiment Analysis using twitter data-set for user response classification. Classified in **Most innovative student activities** by IITK Newsletter.
  - Android application development for Antaragni 2016 | Mechanical Coin sorter as Technical Arts project.

## TECHNICAL SKILLS

Languages	<b>Proficient:</b> C,C++, Java, Matlab/Octave, Bash, python, MySQL, $\LaTeX$ <b>Experienced:</b> R, Verilog, Assembly, C#, HTML
Softwares	<b>OS:</b> ARCH linux, Ubuntu, Windows <b>Softwares:</b> Android Studio, Unity 3D, NetBeans, Git, vim, CI Jenkins

## POSITION OF RESPONSIBILITY

<b>Coordinator</b>	<i>Programming Club, IIT Kanpur</i>	<i>(May'17-Present)</i>
<b>Coordinator</b>	<i>Google Developers Group</i>	<i>(May'16-April'17)</i>
<b>Manager</b>	<i>Software Corner, Techkriti 2017 (Annual Tech Fest)</i>	<i>(May'16-April'17)</i>
<b>Student Guide</b>	<i>Counselling service, IIT Kanpur</i>	<i>(June'16-April'17)</i>
<b>Academic Mentor</b>	<i>Counselling service, IIT Kanpur</i>	<i>(June'16-April'17)</i>
<b>Senior Web Executive</b>	<i>Antaragni 2016 (Annual Cult Fest)</i>	<i>(May'16-Nov'16)</i>
<b>Senior Executive</b>	<i>Entrepreneurship Cell, IIT Kanpur</i>	<i>(June'16-April'17)</i>