

# Varun Khare

Undergraduate Computer Science

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## ACADEMIC DETAILS

Examination	Institute	Year	CPI/%
Computer Science and Engineering	IIT Kanpur	2015-present	9.3
Class XII	Delhi Public School, Bhopal	2015	93.8
Class X	Delhi Public School, Bhopal	2013	10.0

### Relevant Courses:

Discrete Mathematics | Abstract Algebra | Logic in Computer Science  
Data Structures and Algorithms | Computer Organization

## FIELDS OF INTEREST

- Artificial Intelligence and Machine Learning
- Computer Vision : Scene Understanding, 3D modelling, Motion Capture
- Augmented reality and Mixed Reality

## MAJOR PROJECTS

- **3D Reconstruction** (Research Project)  
(Guide: Prof. Gaurav Sharma, May'16 - July'16)
  - Objective : Understand the principles of reconstruction, epipolar geometry.
  - Implemented **8 point** algorithm in Matlab and created 3D model from images
  - Studied Multiple View Geometry by Hartley and Zisserman, Structure from motion research papers
  - Extended Self project into Reconstruction from **single image** using monocular cues and **deep learning**
- **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 compass was used to detect roads.
  - Awarded **best club project** | 📄: varunkhare1234/augmented-reality-app
- **On Device Machine Learning** (New York Office, IIT Kanpur)  
(Jan'17 - present)
  - Read and worked on **CoCoA** framework and Federated Learning papers by Google
  - Went through randomized coordinate descent, and other approaches tackled earlier.
- **Android App Dev** (New York Office, IIT Kanpur)  
(May'16 - present)
  - Implemented **SSE** notifications, Search functionality, code abstraction and **app-caching**
  - Worked on server client interaction, material UI, **data and property binding**
  - Presently leading 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
- **Machine Learning**
  - Worked with CNN's, RNN's for image classification and image captioning
  - Undertook **Depression Therapy Chat bot** as Programming Club project. Implemented Sentiment Analysis using twitter dataset for user response classification.

## TECHNICAL SKILLS

Languages	<b>Proficient:</b> 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

## HONORS AND AWARDS

Fellowships	National Talent Search Examination ( <b>NTSE</b> ), 2013 <b>KVPY</b> 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

## 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 of IIT Kanpur)</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 Executive</b>	<i>Entrepreneurship Cell, IIT Kanpur</i>	<i>(June'16-April'17)</i>