



**Manas Bhargava**  
**Computer Science & Engineering**  
**Indian Institute of Technology Bombay**  
**Specialization: Computer Science and Engineering**

**150050057**  
**UG Third Year (B.Tech.)**  
**Male**  
**DOB: 16-07-1997**

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2018	8.49
Intermediate/+2	CBSE	Ram Krishna Vidya Mandir, Gwalior	2015	94.80
Matriculation	CBSE	Little Angels High School, Gwalior	2013	10.00

Pursuing Honors in **Computer Science** and Minor in **Electrical Engineering**

## SCHOLASTIC ACHIEVEMENTS

- Secured **All India Rank 43** in **JEE-Advanced** out of 150 thousand candidates [2015]
- Secured **All India Rank 403** in **JEE-Main(B.tech)** out of 1.3 million candidates [2015]
- Received **certificate of merit** from the **Hon'ble HRD Minister of India** for being in the **top 0.1 %** in Physics and Mathematics in **C.B.S.E.** (Central Board of Secondary Education) [2015]
- Awarded the **KVPY (Kishore Vaigyanik Protsahan Yojna)** Fellowship by Govt. of India [2013 and 2014]
- Awarded **AP (Advanced Performer)** grade for exceptional performance in Digital Electronics' course.

## INTERNSHIP

### Game Development

Guide: Avinash Damodhare

Summer 2017

Ubisoft Pune Studio

- Integrated **Haff's game engine** into a strategic platformer game with proper design pattern and ported that game on **DirectX9** and Windows key API
- Created a portable generalized codebase for development of a 3D game
- Developed a **3D Pool game** using **Direct3D** for graphics, windows key API for movement and **Bullet Physics Engine** for handling 3D physics

## COURSE PROJECTS

### Hand Shape Detection

Guide: Prof. Parag Chaudhuri

Winter 2017 - present

IIT Bombay

- Currently working on a project which is based on the principles of **SCAPE**(Shape Completion and Animation of PEople) model, for hand shape detection and its articulation.
- Currently working on generating a rigged mesh model of hand given its depth image.

### Sportico, Sport events organization app

Guide: Prof. S. Sudarshan

Autumn 2017

IIT Bombay

- Built a web-app that facilitates users to organize sports individually or as a team with other users of the community.
- Uses a sophisticated matching algorithm to find relevant matches for a user by skill-set, age-difference and leader board ratings.

### News Headlines Classification using Supervised Learning

Guide: Prof. Ganesh Ramakrishnan

Spring 2017

IIT Bombay

- Built a model to classify news headlines using **SVM** and **Neural Networks** as classifiers
- Compared performance of feature selection techniques like **Mutual Information** and **Chi-square**

### Terminal Based Chat Application

Guide: Prof. Varsha Apte

Spring 2017

IIT Bombay

- Developed a terminal based chat application using **socket programming** and **SQLite3** libraries in python
- Implemented various features like **LDAP authentication**, formation of groups, time-stamps and blacklisting people

### ATM Controller

Guide: Prof. Supratik Chakraborty

Spring 2017

IIT Bombay

- Simulated an ATM controller using **VHDL** for hardware programming and **C++** for back-end server
- Used **FPGAlink** library for communication of binary data via a USB cable between the host server and the FPGA board and also implemented **caching** to support offline transactions

## File Sharing Portal

code.fun.do

December 2016  
Microsoft Hackathon IIT Bombay

- A **Django** and **jQuery** based application which allows users to share files, rate the files they have downloaded and also search for documents based on tags

## Feed'er, a university academic App

Guide: Prof. Sharat Chandran

Autumn 2016  
IIT Bombay

- Designed a personal assistant academic application bridging the gap between faculty and students
- Developed a customized **android** framework that notifies the user of all academic events

## Polynomial Computational Engine

Guide: Prof. Varsha Apte

Autumn 2015  
IIT Bombay

- Developed a program that performs Mathematical Computations on Polynomials
- Designed a **Graph Plotter** for polynomials using the **simplecpp** library of C++

## TECHNICAL SKILLS

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<b>Programming Languages</b>	C, C++, Python, GNU Octave, R, Java, Bash
<b>Web Development</b>	HTML, CSS, JavaScript
<b>Game Development</b>	DirectX 9.0, OpenGL, Pygame, Bullet, Box2D
<b>Softwares</b>	LaTeX, MATLAB, Blender, GNU Plot, Solidworks, AutoCAD, EagleCAD
<b>Electronics</b>	Arduino, Microcontrollers (AVR)

## COURSES UNDERTAKEN

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- **Computer Science:** Computer Graphics, Advanced Computer Graphics\*, Foundations of Machine Learning, Artificial Intelligence\*, Data Analysis and Interpretation, Data Structures and Algorithms, Database and Information Systems, Discrete Structures, Software Systems Lab, Design and Analysis of Algorithms, Computer Architecture, Computer Networks, Implementation of Programming Languages\*, Operating Systems and Computer Architecture
- **Mathematics and Electrical:** Linear Algebra, Ordinary Differential Equations, Numerical Analysis\*, Introduction to Electrical Engineering, Signals and System, Probability and Random Processes

(\*Courses to be completed by April 2018)

## POSITION OF RESPONSIBILITY

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### Volunteer at Abhyasika

July 2016 - April 2017

- Taught Mathematics at Abhyasika, an IIT-B student body that offers quality education to students
- Counsellor, encouraged and helped inculcate values & importance of education to kids from low-income families

## EXTRA-CURRICULAR ACTIVITY

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### Voluntary Work

- Aided in developing a nursery to grow medicinal and flowering plants in the institute and participated in the biodiversity campaign under the **National Service Scheme (NSS)**
- Active Volunteer and Mentor in Electronics and Robotics Club, IITB

### Technical activities

- Designed **QuadCopter**, **line following bot**, **Remote Controlled car**, **Step Counter**, **Automatic door lock system** and **Remote Controlled Plane** under different **Students Technical Body IIT Bombay (STAB)** clubs
- Completed a two day long **Arduino Workshop** organized by the Electronics Club, IIT Bombay
- Attended a week-long workshop "**Fun in Fabrication**" organized by Tata Center for Technology and Design
- Designed a model which would make a dough ball used in making rotis from flour and water with electric components being designed by **Eagle-Cad** and mechanical components' design was made using **solidworks**
- Designed the arcade game of UFO-Spaceship Battle using the **Pygame** library of Python with various animations and sound effects to make the game more engaging
- Simulated space using the Physics Game Engine, **Box2D**, in C++ involving a simulation of a sequence of magnets, metallic balls, and sliders that catch randomly generated balls subjected to magnetic and gravitational forces
- Designed the arcade game PONG on a custom made LED matrix, which is monitored with **Arduino** Microcontroller