

Nihal Kumar Singh

THIRD YEAR UNDERGRADUATE

IIT Bombay, India

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Education

IIT Bombay

B. TECH. IN CIVIL ENGINEERING

MINOR IN COMPUTER SCIENCE AND ENGINEERING

July 2015 - Present

CPI - 8.56/10

CPI in CS courses- 9.33/10

Apeejay School, Nerul

INTERMEDIATE/+2 12TH CBSE

MATRICULATION 10TH CBSE

Till 2015

96.0 %

97.0 %

Experience

Google Summer of Code

Open Source

MOVINGBLOCKS- TERASOLOGY

May 2017 - July 2017

- Developed a new gameplay mode involving puzzles, traps and exploration based content packed in a new world with a backing lore.
- Dealt with the game's physics, multiplayer and Entity Component System. Created new modules for AdvancedBehaviors (for event driven behavior switching), AdventureAssets (for traps and puzzle elements). Made several accompanying API changes to the engine.
- Created and added WildAnimals to the game. Imported models and animations from Blender and configured them to run in-game.

Google Code-In Mentor

Open Source

MOVINGBLOCKS- TERASOLOGY

Winter 2016 and 2017

- Involved as one among 12 mentors for the organisation's first Google Code-In participation. GCI is a pre-university level Google Summer of Code. Enthused in the students the spirit of Open Source and community building.
- Extensively coordinated and assisted in reviewing a total of 606 tasks from 222 students across the globe.
- Authored and edited various tasks. Documented guides to aid students in easy setup and getting started.

Kibo

Mumbai, India

FULL STACK DEVELOPER

Feb. 2016 - June. 2016

- **Project Awaaz**, a non-profit initiative to create an audiobook repository for the blind. Anybody can record text by reading out uploaded content and the recordings would be compiled, stitched and distributed.
- Built the backend for [Project Awaaz](#) and the Kibo website using the Django framework- Python/Django/Apache/MySQL. Designed responsive websites. Worked extensively on the Android application for Project Awaaz and handled server side integration.

Projects

Voice Conversion

Computer Science & Engineering, IIT Bombay

MACHINE LEARNING COURSE PROJECT UNDER PROF. PREETHI JYOTHI

Spring 2018

- Built a pipelined approach to convert one person's voice into another person's voice. Proposed a deep learning approach to convert source waveform to phonemes and further phonemes to target waveform. Trained on TIMIT and CMU ARCTIC corpus respectively.
- Performed extensive experimentation with bi-directional Recurrent Neural Networks using LSTM and GRU cells. Adopted a multitask training approach by evaluating loss over an intermediate state with a pyramidal network architecture.

Flood League- Endless Runner Game

Ubisoft GameJam Winner

UNITY 3D, C#

Autumn 2017

- Designed and developed an endless runner game using Unity3D. Superheroes have to drive past the obstacles while rescuing the drowning civilians as their boat rushes past the flood-stricken city. Extensively worked on level design and implemented functionality such as continuous scoring, heat vision, super stretch arms, superpower cooldown among others.

Steganography Tool

Civil Engineering, IIT Bombay

DIGITAL IMAGE PROCESSING COURSE PROJECT UNDER PROF. J INDU

Autumn 2017

- Implemented a steganography tool using MATLAB with custom terminal GUI. Implemented variations of encryption algorithms using Least Significant Bit to encrypt/decrypt text within an image with a custom passphrase.

Run- Treasure Hunt

Yahoo! Japan HackU Winner

ANDROID, DJANGO, OPENCV

Spring 2017

- Built a multi-player treasure hunt Android game supported by a Django server. Players look for and click a picture of an object around them as shown in the clue received on their phones to get the next clue. The first to finish the trail and decipher the clues wins.
- Used histogram equalization and scale invariant feature transform (SIFT) for rudimentary image matching.

Secure Authenticated Fast Exams Application

Computer Science & Engineering, IIT Bombay

R&D PROJECT UNDER PROF. BHASKARAN RAMAN

Autumn 2016

- Worked for the development of the SAFE Android application that facilitates online paperless tests in educational institutes.
- Multiple devices concurrently connect to a Wireless Access Point to fetch test data with action-logging happening in real time at the invigilator's console. Worked on fetching and displaying of performance history and correct/incorrect answer visuals on the app.

Lend-It

Microsoft Code.Fun.Do Finalist

DJANGO, JQUERY

Autumn 2016

- Designed a Django-based web application that serves as a platform to bridge the gap between lenders and borrowers. Through Lend-It one can find people nearby who wish to lend and borrow books or other shareable commodities and perform a safe exchange.
- Implemented a backend using Django for the Lend-It website, which allows user interaction, sending notifications, searching and lending books, maintaining a user profile among other features

EVENTual

Institute Technical Summer Project IIT Bombay

ANDROID, DJANGO, VANILLA JS

Summer 2016

- Created a platform for creating and sharing events easily, automating the task of filling details in the calendar by generating shareable links and QR Codes. Made a Django based web application to facilitate creation and searching of events.
- Developed an Android app which would pick up sharable links and scan QR Codes, to automatically add the event to calendar.

MooDLD

UG Academic Council IIT Bombay

ANDROID, WINDOWS, LINUX, OSX

Autumn 2015

- Made a Moodle downloader in Python using Tkinter GUI for downloading shared course files on Moodle and segregating them.
- Developed an Android application for the same using Asynchronous tasks and multiple user customization features. (for Moodle version < 2.4, where Moodle Mobile wasn't compatible). Published by the Institute's Academic Council for institute wide usage. Crossed 1000 downloads within 2 days of launch. Pulled off since Moodle version bump to allow support for official Moodle Mobile app.

AssistANT- Puzzle Game

Lenovo Game Jam Prize Winner

UNITY 2D, C#

Autumn 2015

- Built a puzzle game using Unity similar to the classic Bulldozer game. Guide the ant to push the sugar cubes down the ant holes.
- Dealt with basic 2-D physics and box colliders. Made custom sprites and worked largely on level design.

Achievements

Oct 2017	Finalist , Digital Ocean Campus Champ Contest- build an application prototype.	<i>Online</i>
Oct 2017	1st Place , Ubisoft GameJam- 48 hour GameJam conducted in Ubisoft Pune studios.	<i>Ubisoft Pune</i>
Mar 2017	Yahoo! Prize , The "most creative and fun hack" in Yahoo! Japan's institute wide hackathon	<i>IIT Bombay</i>
Dec 2016	Runner Up , Microsoft Code.Fun.Do institute wide hackathon	<i>IIT Bombay</i>
Aug 2016	5th Place , Hack InOut- out of 1000+ teams in nationwide hackathon. (3-person team)	<i>NIT Surat</i>
Mar 2016	Runner Up , Kandy Hackathon- institute wide open hackathon	<i>IIT Bombay</i>
Sep 2015	2nd Place , Lenovo Game Jam- institute wide Game Development hackathon (2-person team)	<i>IIT Bombay</i>

Positions of Responsibility

Manager

IIT Bombay

WEB AND CODING CLUB, INSTITUTE TECHNICAL COUNCIL

Apr. 2017 - Mar. 2018

- Led a team of 20 sophomores, part of one of the biggest college technical clubs in India, to conduct hobbyistic programming activities in the institute. Organized multiple talks, workshops and competitions. Awarded the Institute Organizational Color 2017-18.
- Organized and conducted the first ever, Data Science Day, consisting of Panel Discussion, talks from Professors and the Mumbai chapter of Stanford's Women in Data Science conference to supplement the learning of students in the associated fields.
- Built an internship portal to connect students with startups/professors. 700+ registrations and 20+ internships offered.
- Established ties with Google Developers Group- Mumbai, Ubisoft, Udacity and multiple other sponsors for organising events.

Convener

IIT Bombay

WEB AND CODING CLUB, INSTITUTE TECHNICAL COUNCIL

Apr. 2016 - Mar. 2017

- Coordinating events of one of the largest programming clubs in India aimed at inspiring students to take up programming as a hobby.
- Conceptualized and built a community wiki, consisting of guides and references, to help beginners get started with programming.
- Started and maintained the WnCC youtube channel. Added a series of talks and discussions under WnCC Vodcasts.
- Ideated and initiated Rattlesnake- the pilot online Python Workshop to teach by building. Hosted on WnCC's youtube channel.
- Conducted the GIT and Python workshop and assisted in organizing several other events and talks.

Web and Tech Coordinator

IIT Bombay

WEB AND CREATIVES, MOOD INDIGO

Sep. 2016 - Dec 2016

- Created the official app for Mood Indigo, Asia's largest college cultural festival with a footfall greater than 1.31 Lakhs. (5k downloads)
- Implemented core backend functionality in the app, fetching events and creating timely notifications for subscribed events.

Relevant Courses

Computer Science

Computer Programming and Utilization, Data Structures and Algorithms, Computer Networks, Operating Systems, Introduction to Machine Learning, R & D Project

Civil Engineering

Engineering Mechanics, Solid Mechanics, Structural Mechanics, Fluid Mechanics, Applied Hydraulics, Digital Image Processing and Remote Sensing, Geodesy, Geotechnical Engineering, and Engineering Drawing

Others

Economics, Quantum Mechanics, Electromagnetism, Calculus, Linear Algebra, Differential Equations

Skills

Comfortable C/C++, Python, Java, Android, HTML, CSS, JavaScript

Familiar Django, OpenCV, Bash, Ruby, PHP, Jekyll, MySQL, SQLite, Arduino

Software/Tools Tensorflow, MATLAB, Octave, Git, Adobe After Effects, NCH Video Pad, \LaTeX

Miscellaneous

Journalism

Selected in the Times of India- NIE student camp for junior-journo in 2011 to be trained under Nikhat Kazmi. Authored and edited independent articles published in Times of India - NIE.

Sports

Swimming- participated and completed the 12 hour Swimathon '16. Inter-school Football player.

Interests

Music, Gaming, Videography and Travelling