

Rohit Ranjan

JUNIOR UNDERGRADUATE · COMPUTER SCIENCE AND ENGINEERING
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Educational Qualifications

Year	Degree	Institution	CGPA/%
July'18 – May'22(Expected)	B.Tech, CSE	Indian Institute of Technology, Kanpur	9.2/10.0
2018	CBSE – XII	Krishna Public School, Patna	92.0%
2016	CBSE – X	Jawahar Navodaya Vidyalaya, Saran	10.0/10.0

Scholastic Achievements

2019	Academic Excellence Award , amongst Top 6% students of the department	IIT Kanpur
2018	Academic Excellence Award , given to Top 10% of the batch	IIT Kanpur
2018	All India Rank 782 , Joint Entrance Examination Advanced among 200,000 candidates	India
2018	All India Rank 367 , Joint Entrance Examination Mains among 1.5 million candidates	India
2019	Samsung Star Scholar , awarded to students graduated from J.N.V performing academically well in IITs	Samsung, India
2019	All India Rank 1 , Indian Engineering Olympiad	Gateforum, India

Work Experience

IITK - Summer Of Code

IIT Kanpur

FULL STACK DEVELOPER INTERN, UNDER PROF. SANDEEP SHUKLA

April 2019 - June 2020

- Developed a dynamic and scalable web application using **Django** framework from scratch as an initiative to support various NGOs of India by keeping track of records of users and their donation history.
- Implemented various functionalities that allows registered users to choose from various NGOs to donate, as well as the registered NGOs to list their mission and necessities.
- Developed whole Backend system using **Django** and **Django-REST**, used **ReactJS** to develop Frontend.
- Established a Payment Portal to handle all type of transactions using **Paytm API**.

Boost C++ Organization

Boost.Astronomy, GitHub

SOFTWARE DEVELOPER, BOOST.ASTRONOMY

March 2020 - Present

- Implemented Various Arithmetic Operations(e.g Cross Product, Dot Product, Inter-transformations) for the existing Astronomical Coordinate system using **Boost::Geometry** and **Boost::Units** library.
- Restructured Base class of the existing Coordinate System to support Inter-Comparisons and added tests for differential coordinates to provide a robust astronomical coordinate system.
- Used **Template Meta Programming** in C++ to provide almost no run-time overhead and allow users to write scientifically infallible code by detecting all errors at the compile time.

Skills

Programming C/C++, Python, Haskell, Bash Scripting, Verilog

Web HTML5, CSS, Javascript, SQL, React Native

Utilities/Platform Linux Shell Utilities, Git, Vim, Matlab, Octave, \LaTeX

Libraries Numpy, Matplotlib, Pandas, TensorFlow, Scipy

Relevant Courses

Introduction to Programming
Discrete Mathematics
Computer Organization

Linear Algebra
Data Structures and Algorithms
Modern Cryptology

Introduction to Logic
Software Development & operations
Computational Methods in Engineering

Projects

Caves Game

IIT Kanpur

COURSE PROJECT, PROF. MANINDRA AGRAWAL

January 2020

- Explored and Analysed different Existing Encryption & Decryption system(including **DES**(Data Encryption Standard), **AES**(Advanced Encryption Standard), **RSA** (Rivest, Shamir, Adleman)) and implemented these.
- Completed all **7** levels of the Caves Game using these encryption and decryption system. Made use of these encryption and decryption systems to extract the key and unlock the subsequent levels of the game.

Life@IITK

IIT Kanpur

PROGRAMMING CLUB, SCIENCE & TECHNOLOGY COUNCIL, IIT KANPUR

June 2019

- Collaborated with application developers team to create a web application which streamlines the various aspects of the day-to-day lives of campus students.
- Worked with frontend team to design a Map Page using **ReactJS** showing ongoing events in IITK with pinned location on map according to building or place where events are going to happen.
- Also assisted backend team to establish data tables of users and events & create relations between these. Used **Django-REST** to create a **Rest Api** which helps in serialization of events data.

P2P Video Conferencing App

IIT Kanpur

ASSOCIATION FOR COMPUTING ACTIVITIES, DEPARTMENT OF CSE, IIT KANPUR

Jan 2019 - March 2019

- Designed a basic web application which connects multiple registered users and allows them to communicate between each other via text messages, voice call, One to One Video Call or via Video Conferencing.
- Used **Python-Flask framework** to handle all backend necessary processes and methods(e.g **User Registration, Sign In, Sign Off..**).
- Used a Javascript open framework named **WebRTC** to establish real-time communication between peers and enabling them to talk seamlessly.

Algorithm In Depths

IIT Kanpur

PROGRAMMING CLUB, SCIENCE & TECHNOLOGY COUNCIL

May 2019 - Jul 2019

- Studied and analysed the flow & structure of various classical algorithms such as Graph Algorithms, Data Compression Algorithms and Pattern matching Algorithms
- Explored and implemented KMP, Aho-Carosick, Huffman Coding, Disjoint Set Union, Floyd Warshall and Bellman-Ford Algorithms

Mini/Self Projects

PolySAT

Implemented a SAT solver for propositional logic using the DPLL Algorithm in C++.

FlappyBirdAI

Created a FlappyBird AI model using NEAT Algorithm.

ChessPy

Created a very simple chess engine using Python.

StudentDATA

Developed a system to handle student database in C++ using SQL Database.

Decoder

Developed a decoder in Haskell to decipher monoalphabetic substitution ciphers.

Miscellaneous

- Mentored freshers in ACA project **FlappyBirdAI using NEAT** organized by Dept. of Computer Science & Engineering
 - Mentored group of 6 freshers in learning Python language and basics of Genetic Algorithm with assignments such as breaking Vigenere cipher using genetic algorithm
 - Created replica of Flappy Bird game in Python using Pygame library and implemented NEAT Algorithm for training model to play game. Model learned to avoid obstacles in just 5-6 generations with population size of 100
- **Senior Marketing Executive** in Udgosh'19, IIT Kanpur
 - Approached a number of brands in nearby cities for the association with Udgosh along with visits to their offices
 - Strategized Pre and In festival marketing plans to attract corporate powerhouses for associating with event
 - Responsible for In fest publicity, workshops and talks by our sponsors and hospitality of the representatives
- **Senior Web Executive** in Udgosh'19, IIT Kanpur
- Received First Prize, National Level Chess Championship