Rohit **Ranjan**

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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*

Programming Achievements

2019	**Google foo-bar challenge**, Completed 3 out of 5 levels	*Google*
2020	**Six Star Badge**, for scroing more than 3000 points in problem solving skill	*Hackerrank*
2019	**Specialist Rated**, with max. rating more than 1500	*Codeforces*
2020	**Three star Rated**, with rating more than 1600	*Codechef*

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-Comparisions 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	Linear Algebra	Introduction to Logic
Discrete Mathematics	Data Structures and Algorithms	Software Development & operations
Computer Organization	Modern Cryptology	Computational Methods in Engineering

Projects

5G/6G Development *IIT Kanpur*

Prof. Aditya K. Jagannatham, Dept. of electrical Engineering *July 2020 - Present*

- Analysed various aspects of the existing wireless technology including **2G, 3G, 4G** and upcoming **5G** technology & it's embedded technologies like **MIMO**, **OFDM** and **CDMA**.
- Designed models to differentiate foreground and background in the cheetah image problem using **Bayesian decision theory**, **Bayesian Classifiers** and **Bayesian Parameter estimation**.
- Used MATLAB machine learning toolbox, SciPy, NumPy, Matplotlib to develop above models and analyse their accuracy.
- Acheived maximum Accuracy of 96.3% with falseness:0.153 for the above model in Image distinction

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 Encrytpion 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 & Technolgy 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 Registeration**, **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.

[1]

[1]# not verified by SPO