Rohit Ranjan

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Educational Qualifications

Year	Degree	Institution(Board)	CGPA/%
July'18 – June'22 (expected)	B.Tech, CSE	Indian Institute of Technology, Kanpur	9.2/10.0
2018	CBSE – XII	Krishna Public School, Patna	92%
2015	CBSE – X	Jawahar Navodaya Vidyalaya, Saran	10/10

Honors and Achievements

- Awarded with **Academic Excellence Award** consecutively for two academic years 2018-19 and 2019-20
- **AIR 782**, JEE Advanced (amongst 160,000 candidates)
- **AIR 367**, JEE Main (amongst 1.4 million candidates)
- **Samsung Star Scholar**, given to 150 JNV students
- **AIR 1**, Indian Engineering Olympiad (amongst 16,000 candidates)

Projects

Caves Game — *CS641 Course Project*
Mentor: Prof. Manindra Agarwal, CSE — Jan 2020 - May 2020
- Explored and Analysed different existing classical and modern **Cryptographic methods** and their weaknesses
- Completed all **7** levels of game by designing **chosen plaintext attack** for weaker models of **AES**,**DES** and **RSA** and extracted the keys used to encrypt data

Life@IITK — *Science & technology Council*
Mentor: Aditya Gulati — May 2019- July 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 — *ACA,CSE dept.- IIT Kanpur*
Mentor: Mrinaal Dogra — Jan 2019- Mar 2019
- Designed a basic **web application** which connects multiple registered users and allows them to communicate between each other via text messages, voice call & video call
- Used a Javascript open framework **WebRTC** to establish real-time communication between peers and enabling them to talk seamlessly
- Used **Python-Flask** framework to handle all backend necessary processes and methods(e.g **User Registeration**, **Sign In**, **Sign Off..**)

Algorithms in Depth — *S&T council- IIT Kanpur*
Mentor: Sarthak Singhal, Aniket Sanghi — 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.

Work Experience

Summer of Code, IIT Kanpur — *Full Stack Developer Intern*
Supervisor: Prof. Sandeep Shukla — May 2019 - July 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 — *Developer*
Project Maintainer: Pranam Lashkari, Boost.Astronomy — Mar 2020
- Implemented Arithmetic Operations for the existing Astronomical Coordinate system using **Boost::Geometry** and **Boost::Units** library, added tests for these
- Used **Template Meta Programming** in C++ to provide almost no run-time overhead and allowing users to write code by detecting all errors at the compile time

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

Skills

Programming: C/C++, Python, Haskell, Bash, Verilog
Web: HTML5, CSS, Javascript, SQL, React Native
Utilities/Platform: Linux, Git, Vim, Matlab, LATEX
Libraries: Numpy, Matplotlib, Pandas, TensorFlow, Scipy

Miscellaneous

- Mentored Freshers in ACA project **FlappyBirdAI using NEAT** organized by Computer Science department
- **Senior Marketing Executive** in annual sports festival Udghosh'19, IIT Kanpur
- **Senior Web Executive** in annual sports festival Udghosh'19, IIT Kanpur
- Received **First** Prize, National Level Chess Championship held at Nagaon, Assam

Relevant Coursework

Data Structure and Algorithms	Fundamentals of Programming	Modern Cryptology
Computer Organization	Computational Methods in Engineering	Multivariate Calculus
Linear Algebra and ODE	Discrete Mathematics	Software Development and Operations