# ROHIT RANJAN

Junior Undergraduate
Department of Computer Science and Engineering
Indian Institute of Technology, Kanpur

rohitrjn629@gmail.com ✉
https://rohitranjangit.github.io/ ⌂
RohitRanjangit ⓞ | rohitrjn629 in
+91-9680549779 ☐

## 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% |
| 2016 | 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 |