

# Nakul Jain

Senior Year Undergraduate

✉ nakuljn@iitk.ac.in | 🌐 nakuljn | 📞 +91 808 561 3396 | 📄 nakuljain20

## Academic Qualifications

Year	Degree/Certificate	Institute	CPI/%
2018 - Present	B.Tech in Computer Science and Engineering	Indian Institute of Technology, Kanpur	7.3/10
2018	CBSE(XII)	Ram Krishna Vidya Mandir, Gwalior	95.2%
2016	CBSE(X)	Gwalior Glory High School, Gwalior	10/10

## Scholastic Achievements

- Received the **Academic Excellence Award** from IIT Kanpur for exceptional academic performance in 2018-19
- Secured an All India Rank **175** in **JEE Advanced** 2018 among 0.2 million candidates organised by IIT Kanpur
- Attained an All India Rank **98** in **JEE Mains** 2018 among 1.2 million candidates conducted by CBSE
- Received an **Excellence award** from School for scoring **100%** in Chemistry in CBSE 12th Board in 2018
- Achieved All India Rank **457** and selected for **Kishore Vaigyanik Protsahan Yojana (KVPY)** fellowship in 2017-18

## Internship Experience

**Qualcomm** | Software Development Internship | Team: NR 5G (May'21-Jul'21)

- Objective:** Automate the **MAC Profiling Parser** program and improve the readability of **F3 Error Logs** generated by Clang
- Implemented the **auto downloading feature** of several log packets sequentially from **Axiom server** using **Python, xml, json**
- Stored the log packets with required **CRM Builds** in **MongoDB** and got hands on experience on dynamic analysis via **Bokeh**
- Developed a **user-intuitive interface** for tabular view of **F3 logs** generated by running enum replacement script on **LTE logs**
- Parsed the **F3 log messages** and **sorted** them based on their **frequency of occurrence** for rapid and detailed **analysis**

**Demux Academy** | Full Stack Developer Internship | Supervisor: Eng. Varun Garg (Apr'20-Jun'20)

- Objective:** Develop a **Web-Application** from scratch and deploy it on **AWS EC2** web server by configuring different services
- Developed a **Movies Searching Web-App** using Node.JS, React, Express which allows the user to search for favourite movie
- Fetches all the details of the movie through a **RESTful API web service - OMDB** and stored the data in **MySQL database**
- Deployed the application on **AWS EC2** ubuntu image and allocated Elastic IP **load balancer** for our instance to control traffic
- Virtually hosted the service through **ApacheV2**, **Confd Config**, **Version Control** and **DNS Config** and finally on a **Live Domain**

## Key Projects

**C to x86 Compiler** | Supervisor: Prof Amey Karkare (Jan'21-Apr'21)

- Developed a compiler from scratch - **Source language C**, **Target language x86 compiler** and **Implementation language C++**
- Implemented **Lexical analyser**, **Syntax analyser** and **Semantic analyser** to obtain Abstract Syntax Tree
- Generated **3 Address Code** as intermediate language acting as bridge between high-level source and low-level assembly language
- Incorporated support for error and warning generation for syntactically and semantically erroneous programs

**Analysing Databases** | Supervisor: Prof Arnab Bhattacharya (Mar'21-Apr'21)

- Worked with SQL, MariaDB and MongoDB to analyse the effects of varying relations, sizes etc. on **execution time** of queries
- Executed **4 queries** of varying complexity and **visually analysed** the relation between execution time and database properties
- Reported similar trends for small dbs while **MongoDB and MariaDB - without indexing** took the longest time on large dbs

**GemOS** | Supervisor: Prof Debadatta Mishra (Aug'20-Nov'20)

- Implemented system calls like **open**, **read**, **write**, **close** and functionalities like **Paging**, **File System** and **Message Queues**
- Executed memory management operations with provisions for **mmap**, **munmap** and **huge page creation**
- Developed a debugger in OS with functionalities like **setting and removing breakpoints**, **wait and continue**, **int3 handler**

**Tic Tac Toe against Computer** | Self Project (Jul'20)

- Developed software for Tic Tac Toe games by implementing an **intelligent bot** which is based on **Minimax Algorithm**
- Developed a **user-friendly interface** using HTML5, CSS, Javascript and **ensured fair play** by allowing alternate turns

**Authentication Portal** | Self Project (Dec'19)

- Created a portal to authenticate a user via **REST-endpoint API - Google OAuth** by using email and password as credentials
- Developed a web application with Node.js, Express, Passport, and MongoDB to present the login/signup portal for testing

## Technical Skills

**Languages:** C, C++, Python, Bash, Node.JS, React, Express, Javascript, CSS, HTML5

**Tools:** Git, Vim, L<sup>A</sup>T<sub>E</sub>X, Docker, AWS, MongoDB, MySQL, Msc-Generator

## Relevant Courses

\*Ongoing

Introduction to Computing	Compiler Design	Database Management	Operating Systems
Theory of Computation	Software Development	Advanced Algorithm	Data Structure and Algorithms
Machine Learning*	Probability	Linear Algebra and ODE's	Discrete Mathematics

## Positions of Responsibility

**Manager - Technocruise** | Techkriti (Oct'19-Apr'20)

- Collaborated with various MNCs including Adobe, Cisco for organising workshops in **28 cities** with more than **4000 participants**