

# Nakul Jain

Senior Year Undergraduate

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## 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 and All India Rank **98** in **JEE Mains** 2018
- 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**
- 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 Clang
- 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 the required details of the movie through OMDB API and stored the data in **MySQL database**
- Deployed the application on AWS EC2 and virtually hosted the service through ApacheV2, Confd Config, and DNS Config

## 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

**Variations across 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
- Created 9 databases using 12 tables of sizes ranging from **50-50,00,000** and executed **4 queries** of varying complexity
- Analysed the relationship between various aspects of the databases and execution time by plotting graphs using python

**Building 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 and int3 handler

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

- Implemented a software for Tic Tac Toe game in C++ by creating 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 credentials
- Built a web application with Node.js, Express, Passport, and MongoDB to enable user-friendly demos

## Technical Skills

**Languages:** C, C++, Python (Proficient), 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, MS Office

## Relevant Courses

*\*Ongoing*

Machine Learning*	Compiler Design	Operating Systems	Software Development and Ops.
Database Management	Computer Organization	Advanced Algorithms	Data Structure and Algorithms

## 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**

**Senior Executive - TOSC** | Techkriti (Jul'19-Oct'19)

- Successfully conducted Techkriti Open School Championship(TOSC) exam in various cities with more than **2000 participants**