# Sankalp Bhat

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## Education

**International Institute of Information Technology, Hyderabad**                    **Sep. 2020 – now**

*Bachelor of Technology and Master of Science by Research in Electronics and Communication Engineering*

## Experience

**IBM Labs - India Systems Development Laboratory**                    **May 2024 – Aug 2024**

*Software Engineering Intern [**Mainframe Architecture, Computer Networking | C, C++, bash**]*                    *Bengaluru*
- Duties involved **automating the testing** of the Telnet 3215 and Telnet 3270 protocol traffic on the mainframe, and inserting traces and collecting logs to help improve debug utilities.
- Took up the task of **upgrading the kernel and TCP/IP Libraries** of the **Embedded FreeRTOS Operating System** to employ **Thread Local Storage**, and functionally verifying it using both kernel and networking tests.

**Accelerize 360 (certified Salesforce partner)**                    **Jan 2025 – May 2025**

*Data Engineer Intern [**Snowflake, Data Analysis, Terraform | Python, SQL**]*                    *Remote*
- Designed an automated data versioning system within ingestion pipeline to intelligently detect file version updates, replacing manual backup-and-replace workflows with seamless automatic data updates, **improving efficiency by 54%**.
- Developed interactive dashboards by migrating Excel pivot tables to Retool, leveraging Snowflake's distributed cloud architecture for scalable data retrieval and SQL for complex tabulations and metric calculations across large datasets.

**Computer Systems Group**                    **May 2022 – now**

*Undergraduate Researcher [**Large Language Models, Computer Architecture | Python, Verilog**]*                    *IIIT Hyderabad*
- Benchmarking Large Language Models (LLMs) and designing Multi-Agent Systems to aid hardware designers in the space of complex arithmetic circuits such as pipelined multipliers and systolic arrays, with 2 publications under review.

**Virtual Labs**                    **Mar 2025 – now**

*Software Developer [**Computer Architecture, Front-End Development | JavaScript**]*                    *IIIT Hyderabad*
- Designed interactive educational experiments pertaining to various topics from Computer Architecture such as Cache Coherence and Instruction Scheduling, ranging from simulations to tests and theory.

## Projects

**sash - Interactive C Shell** | *Operating Systems* | *C* | ⬛                    **Oct 2023**
- A modular bash-like command interpreter written in C to handle **process management, directory management, I/O redirection, piping,** and **signal handling using system calls.**
- Supports a prompt with **username, hostname** and **directory**, basic commands such as cd, pwd, echo, ls, repeat, pinfo, and the ability to run external commands as foreground and background.

**ImaGen** | *Fullstack Development* | *MERN Stack* | *JavaScript* | ⬛                    **Jul 2022**
- Built and deployed a **fullstack interactive application** to generate AI-generated images generated using text-based prompts.
- The application utilizes the Dall-E API to generate images enabling users to customize and experiment with different settings to produce a wide range of unique visuals.

**Olympics Analysis** | *Data Visualisation* | *Machine Learning* | *Python* | *JavaScript* | ⬛                    **Jul 2024**
- Implemented efficient data processing algorithms and optimized **time series forecasting models using random forest classifiers**, handling large-scale Olympic datasets to predict medal counts for Paris 2024.
- Designed scalable **data visualization pipelines** with optimized query performance for real-time dashboard updates.

**Marketify** | *Database Management Systems* | *PyMySQL* | ⬛                    **Nov 2022**
- Implemented a **database management system** using PyMySQL for an online marketplace where people can review and purchase items, via multiple methods like online wallets and online banking.
- Supports tracking of orders after purchase, and also saves previous transaction details such as addresses and payment methods to save time for the user.

## Technical Skills

**Languages**: • C • C++ • JavaScript • Python • Embedded C • SQL • LaTeX • MATLAB • Verilog • VHDL
**Libraries/Frameworks**: • React.js • Node.js • Express.js • MongoDB • pandas • sk-learn • OpenCV • OpenMP

## Achievements

- **Dean's Merit List** for both the semesters for the year 2020-21, awarded to the **top 10%** of the students.
- Qualified for the **Regional Mathematical Olympiad** for the years 2018 and 2019, ranking amongst the **top 50** students in the state of Karnataka.
- Coordinator of The TV Room Quiz Club at IIIT Hyderabad, organising quizzes and creating daily content that reached thousands.