

## EDUCATION

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<b>Indian Institute of Technology Delhi, New Delhi</b> <i>Master of Technology, Computer Science and Engineering</i>	CPI: 8.54 July. 2023 – Present
<b>Indian Institute of Technology Dharwad, Karnataka</b> <i>Bachelor of Technology, Electrical Engineering</i>	CPI: 8.53 Aug. 2018 – April 2022

## WORK EXPERIENCE

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<b>LG Soft India Pvt. Ltd</b> <i>Research Engineer (C · C++ · Python · Pthread · GTest · Docker)</i>	July 2022 – July 2023 Bangalore, India
<ul style="list-style-type: none"><li>Developed and maintained Digital Video Broadcasting microservices for the WebOS platform in LG TVs (<i>HEVC</i>)</li><li>Enhanced the Service Operator Update Package (SOUP) for over-the-air service operator updates.</li><li>Mentored interns, guiding projects related to the TSDuck tool to enhance NIT table parsing.</li><li>Led a PoC initiative to automate vision-based TV QA tests. Macroblocking artifacts detection (<i>FFmpeg, VGG-16</i>)</li></ul>	
<b>Logic Fruit Technologies Pvt. Ltd</b> <i>Research Intern ( VHDL · QuestaSim · Vivado HLS · C++ · Python )</i>	Oct 2021 – June 2022 Bangalore, India
<ul style="list-style-type: none"><li>Contributed to RTL front-end design (FPGA), developing a Bit Error Rate Analyzer for PCIe Gen5-6 devices</li><li>Implemented Precoding module in the data path and modified Recovery and Equalization (LTSSM) modules</li></ul>	

## PROJECTS

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<b>PCB Component Library Module</b> (Prof. Smruti R. Sarangi, IIT Delhi)	Dec. 2024 - Present
<ul style="list-style-type: none"><li>Leading development of a component library model for an in-house PCB design software with GenAI integration.</li><li>Designed a parser and AST checker for KiCAD S-Expression files to extract electronic component data. (<i>C++</i>)</li><li>Extracting typical application circuit diagrams from datasheets and converting them into editable S-formats.</li></ul>	
<b>Performance Characterization of On-Device LLMs</b> (Prof. Smruti R. Sarangi)	Dec. 2023 - Nov. 2024
<ul style="list-style-type: none"><li>Performed model quantization using Activation-aware Weight Quantization (AWQ) to compress the Mistral-7B.</li><li>Hosted the compressed model with a RAG pipeline on an 8GB VRAM workstation. 3.4× latency improvement.</li><li>Conducted latency and throughput characterization. Introduced static batching for optimal throughput.</li><li>Leveraged CNN accelerator (Intel-NCS) for vector embedding, improving RAG inference latency by 2.26×.</li></ul>	
<b>Demand Paging and Copy-on-Write in xv6</b> (Prof. Abhilash Jindal, IIT Delhi · Git)	Mar. 2024 - April. 2024
<ul style="list-style-type: none"><li>Implemented demand paging with a swap blocks partition, custom page fault handlers, and victim page logic (<i>C</i>)</li><li>CoW feature for shared memory between forked processes, with read-only protection and effective write handling</li></ul>	
<b>Trivial File Transfer Protocol</b> (Prof. Smruti R. Sarangi, IIT Delhi · Git)	Oct. 2023 - Nov. 2023
<ul style="list-style-type: none"><li>Developed TFTP server and client software based on RFC1350, ensuring universal compatibility and unit tested</li><li>Implemented custom file compression using Huffman encoding on the client side. (<i>C++ · GTest · CMake · Pthread</i>)</li></ul>	
<b>Markdown to HTML Compiler</b> (Prof. Smruti R. Sarangi, IIT Delhi · Git)	Aug. 2023 - Sept. 2023
<ul style="list-style-type: none"><li>Built a Flex-based lexical analyzer and Bison parser to construct AST and generate HTML from Markdown(<i>C++</i>)</li></ul>	
<b>Modeling SimpleRisc Based Processor</b> (Prof. Rajshekar.K., IIT Dharwad)	Aug 2020 - Nov. 2020
<ul style="list-style-type: none"><li>Developed a <i>SimpleRisc</i> based assembler in <i>Java</i>. Modeled 5 stage pipelined processor.</li><li>Integrated a cache based memory system. Tested performance using IPC and Cache hit parameters</li></ul>	

## TECHNICAL SKILLS

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• **Languages** : C++, C, Python, VHDL ; **Tools**: Git, CMake, GTest, NumPy, pandas, MATLAB, Vivado HLS, KiCAD

## AWARDS AND POSITION OF RESPONSIBILITY

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- **Reliance Foundation Scholar** 2023-24. **Software Competence Award** - LG Global 2023. **TA Award** - IIT Delhi
- **Teaching Assistant**: Analysis and Design of Algorithms, Software Systems, and Computer Architecture
- **Student Head of Career Development Cell - IIT Dharwad**. Responsible for placement drive 2021-22