

SAHIL BHALCHNADRA PUROHIT

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SUMMARY

Computer Science graduate student currently working on a master's thesis exploring TCP protocols using ns-3 simulator. Strong foundation in Java and C from previous backend development experience and operating systems projects. Seeking software engineering roles to apply technical skills and research interests in networking and cloud computing.

EDUCATION

North Carolina State University, Raleigh, NC, USA

August 2023 – May 2025

Master of Science, Computer Science

GPA: 4/4

Coursework: Algorithms, Operating Systems, Internet Protocols, Cloud Computing, Switch Network Management

Visvesvaraya National Institute of Technology, Nagpur, India

July 2019 – May 2023

Bachelor of Technology, Computer Science

GPA: 9.17/10

Coursework: Data Structures, DBMS, AI, ML, Graph Theory, Parallel Computation, Distributed Systems

SKILLS

- **Languages:** C, C++, Java, Python, Kotlin, SQL, HTML, CSS, Javascript
- **Frameworks/Libraries:** ReactJS, NodeJS, SpringBoot, Flask,
- **Databases:** MySQL, MongoDB
- **Computer Network:** TCP/IP, DNS, DHCP, NAT, HTTP, Scoket Programming
- **Other skills:** Wireshark, Packet Tracer, NS-3, Markdown, Linux shell, git, bash

EXPERIENCE

North Carolina State University, Raleigh, NC, USA

Research Assistant (Part Tiem)

September 2024 – Present

- Exploring potential research topics in congestion control for high-performance computing (HPC) environments, focusing on MS thesis work under the guidance of Professor Dr. Jianqing Liu.
- Reviewing current research papers and studying recent advancements in congestion control algorithms, analyzing their impact and applicability in HPC environments.

Tata Consultancy Services, Pune, India

Software Engineering Intern

May 2022 – July 2022

- Engineered and incorporated a Python-based automation tool into a web solution, streamlining key processes and significantly boosting operational efficiency.
- Architected robust backend services utilizing Java Spring Boot and revamped frontend interfaces with ReactJS, resulting in enhanced system usability and improved user experience.

PROJECTS

Analysis of TCP Variants and Application Layer Protocols

January 2024 – August 2024

- Collaborated with Professor Dr. Jianqing Liu to replicate experiments from research papers on TCP variants like CUBIC, DCTCP, and BBR using the ns-3 simulator. Evaluated the performance of various TCP protocols to verify and reproduce the results reported in the original studies.
- Developed Client-Server Models for HTTP 1.0, HTTP 2.0, and gRPC protocols, along with a Peer-to-Peer Model for the BitTorrent Protocol in Python, facilitating secure and efficient file transfers.
- Constructed a dumbbell topology using ns3 simulator to evaluate the performance of TCP CUBIC and DCTCP, yielding insights into network behavior and performance optimization.

Advanced Scheduler Implementation and Memory Virtualization in Xinu OS

August 2023 – December 2023

- Implemented an Exponential Distribution-based Scheduler and a Linux-like Scheduler in Xinu OS, improving process management and enhancing system responsiveness through efficient task prioritization and execution.
- Developed a comprehensive Memory Virtualization system with a 2-level Paging, Page Fault Handler, backing storage and Disk storage Implementation, enhancing memory management efficiency and better resource utilization

Automated Interview System with NLP-Based Recommendation Engine

July 2022 – April 2023

- Built a backend system using Flask to automate the interview process, streamlining candidate assessment.
- Integrated an NLP-based recommendation system, improving the accuracy and relevance of candidate recommendations.
- Published findings in a paper at the PCEMS 2023 conference, presenting research to industry experts and academics.