

ALEX

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Education

Harcourt Butler Technical University

Bachelor of Technology in Electronics Engineering

Aug. 2022 – present

Kanpur, Uttar Pradesh

Relevant Coursework

- Data Structures
- Algorithms Analysis
- Linear System Theory
- VLSI Technology
- Cyber Security
- Digital Electronics
- Microcontroller and Microprocessor
- Signals and Systems

Projects

Network Analysis With tcpdump | *Python, Scapy, Metasploit*

January 2025

- Designed a real-time network analysis framework using tcpdump, analyzing 1 TB+ traffic to optimize TCP/UDP performance.
- Implemented Selenium to create an instance of Chrome in order to interact with the correct elements of the web page.
- Automated packet filtering and reporting, reducing manual effort and improving network reliability by 10 percent.
- Proposed optimizations for protocol configurations, enhancing throughput in high-speed environments.

Containerization with Docker and Kubernetes | *Docker, Prometheus, Grafana*

December 2024

- Developed containerized pipelines for physics simulations, reducing setup time by 30 percent using Docker and Kubernetes.
- Built scalable Kubernetes clusters with Helm, enabling dynamic resource allocation for distributed workloads.
- Integrated monitoring tools (Prometheus, Grafana) to track performance and ensure system reliability.

Security Hardening on Linux Systems |

December 2024

- Hardened Linux servers with SELinux, AppArmor, and automated patch management via Ansible, reducing vulnerabilities by 40 percent.
- Conducted vulnerability assessments using OpenVAS and Lynis, addressing critical system risks.
- Configured firewalls (iptables, nftables) and secure SSH protocols, improving system security.
- Authored a comprehensive security playbook adopted for future audits and system hardening tasks.

E-Commerce Website | *React, JavaScript, NodeJs*

August 2024

- Implemented the frontend using React with state management via Redux/Context API and ensured a responsive, user-friendly interface.
- Developed the backend with Node.js and Express, integrating Stripe API for secure payment processing.
- Optimized performance using Redis caching, reducing database queries and improving response times.
- Designed and managed a scalable MongoDB database for storing user profiles, product details, and transaction logs.

Real-Time Chat Application | *React, JavaScript, NodeJs, WebSocket*

October 2024

- Designed and implemented a real-time chat system using WebSocket for instant two-way communication.
- Built a dynamic React.js front-end with a user-friendly interface for seamless chat experiences.
- Developed a Node.js and Express.js server to manage WebSocket connections and message broadcasting.
- Utilized PostgreSQL for persistent message storage and efficient retrieval with optimized queries.

Technical Skills

Languages: Python, Java, C, HTML/CSS, JavaScript, TypeScript, SQL, PostgreSQL, MongoDB

Developer Tools: VS Code, Eclipse, MATLAB, SimuLink, Docker, Kubernetes

Technologies/Frameworks: Linux, Gitlab, GitHub, ReactJS, NextJs, NodeJs, NumPy, Panda, Root

Extracurricular/Leadership

Activities

August-2022 – Present

Harcourt Butler Technical University

- Led a MicroController Project Line Following Robot along with three other batchmates during my 5th semester.
- Like to play Cricket, Volleyball and Chess during leisure time.