

Rajat Girish Chandak

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EDUCATION

North Carolina State University

Master of Computer Science, **GPA: 3.89/4.00**

Raleigh, NC

Aug 2023 – May 2025

Coursework: Design and Analysis of Algorithms, Linux Networking, Software Engineering, Database Management Systems

Shri Ramdeobaba College of Engineering and Management

Bachelor of Engineering in Computer Science, **GPA: 8.68/10.00**

Nagpur, India

Aug 2018 – Jun 2022

Coursework: Data Structures and Algorithms, Operating Systems, Distributed Systems, Object-Oriented Programming

TECHNICAL SKILLS

Languages/Databases: C++, Python, Java, Ruby, JavaScript, TypeScript, HTML5, CSS3, SQL, MongoDB, PostgreSQL

Frameworks/Libraries: Selenium, REST, Redux, Express, React, Boto3, Flask, NestJS, Node, Numpy, Pandas

Developer Tools: AWS, Jira, Jenkins, Linux, Git, Bash, PowerShell, Kafka, Kubernetes, Docker, Ansible, Redis, Bitbucket

WORK EXPERIENCE

Software Developer (Research Assistant), North Carolina State University

Apr 2024 – Present

- Building a full-stack farm management platform using Next.js and NestJS, enabling 1200+ farmers to optimize budgets
- Architected the backend using MVC pattern with RESTful APIs and integrated ML models for crop analysis and price prediction
- Configured AWS infrastructure (Amplify, S3, EC2, & CodeBuild) for scalability and CI/CD, reducing deployment time by 50%
- Orchestrated ETL pipelines with Selenium, AWS EventBridge, and Lambda, processing 10K+ data points for real-time insights

Software Engineer, ZS Associates

Jan 2022 – Jul 2023

- Engineered RESTful APIs using Flask and Boto3 to automate provisioning and management of AWS resources (EC2, EMR, Redshift) for the Analytics Workbench product, reducing resource setup time by 50% and improving security
- Established a real-time monitoring system using AWS CloudWatch, SNS, and custom Python scripts to visualize resource health metrics and automate alerts, decreasing system downtime by 40% for client analytics projects
- Optimized PostgreSQL database performance through query tuning and index optimization, reducing query latency by 30%
- Automated unit and integration tests with pytest, achieving 90% API coverage, reducing bugs by 40%, and boosting API stability
- Engineered responsive AngularJS dashboards with D3.js visualizations for AWS resource management, reducing data processing workflow time by 35% for 500+ data scientists through seamless backend API integration
- Spearheaded code reviews and mentored junior developers while driving Agile practices across cross-functional teams

Software Developer Intern, VCF Cyber Solutions

Apr 2021 – Jun 2021

- Designed a C++-driven audit tool utilizing WMI scripts and registry access to analyze OS configurations and network settings
- Devised a multithreaded algorithm using mutex to scan directories, detecting unnecessary files and optimizing audit speed by 30%
- Automated security checks for antivirus, firewall, browser history, and password policies, generating comprehensive reports

PROJECTS

Software as a Service (SaaS) Development: Scalable CDN as a Service (CDNaaS) on Linux Environment

- Architected a scalable multi-tenant IaaS platform using Docker, VPCs, and Linux virtualization for cloud service simulation
- Programmed a comprehensive CDNaaS solution with Flask-based API endpoints, enabling tenants to deploy and manage edge server VMs across 3+ distributed nodes with custom scripts for advanced content management and fault-tolerant delivery
- Implemented intelligent DNS routing with Google Maps API achieving 99.9% uptime and reducing content delivery latency by 60% through round-robin load balancing
- Developed an Ansible-based automation framework that reduced infrastructure provisioning time from 30 minutes to 5 minutes, improving deployment efficiency by 84%

Full-Stack Development: Scalable Real-Time Collaborative Code Editor Platform

- Implemented an Operational Transformation algorithm for real-time collaboration, supporting 120+ concurrent clients
- Built a Docker-based sandbox for secure code execution in multiple languages, streaming logs via Kafka for real-time monitoring
- Created microservices with Kubernetes, WebSockets, and PostgreSQL for sub-100ms updates and scalable data management

Distributed Storage System: Google File System (GFS) Prototype Implementation

- Engineered a distributed storage system implementing GFS with Master-Chunk architecture, utilizing Redis for metadata caching and RabbitMQ with gRPC for event-driven communication, achieving 50% reduced latency through mutex-based concurrency
- Optimized distributed communication using sockets and Protocol Buffers, reducing network overhead by 40%
- Developed scalable storage with 3x replication across 50 chunk servers, supporting concurrent client requests

ACHIEVEMENTS

- Secured a **Top 10** Finalist position in ‘Startup India Competition 2019’ among 500+ teams held by Govt. of Maharashtra
- Published a research paper on “Challenges and Innovations in Cyber Security” in BBRC journal (Vol. 13, No. 14, 2020)