

CHANDAN MONABOLU NARAYANA

Athens, GA

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Summary

Software Engineer with over 3 years of experience, specializing in backend development, decentralized systems, distributed storage systems, and blockchain technology. Demonstrated expertise in designing scalable microservices, optimizing API performances, and integrating secure data storage solutions. Proficient in solving complex problems and driving innovation through automation and efficient system architectures.

Education

The University of Georgia, Athens, GA

Master of Science in Computer Science

August 2023 – Present

GPA: 3.88/4

REVA University, Bangalore, India

Bachelor of Technology in Electronics and Communication Engineering

August 2017 – June 2021

CGPA: 8.67/10

Professional Experience

The University of Georgia

Software Developer Research Assistant — Python, RabbitMQ, IPFS, MQTT, CockroachDB, Golang

July 2024 – Present

Athens, GA

- Collaborated with Intel to develop a Decentralized Zero-Trust IoT Data Infrastructure, integrating security with scalable solutions for IoT applications, which enhanced system security and scalability.
- Engineered Web3DB, a microservices based decentralized and distributed database using Interplanetary File System (IPFS) as a storage system, improving data accessibility and integrity.
- Consolidated RabbitMQ and Celery into the Web3DB, reducing response time by 30% and enabling real-time data processing, thereby significantly enhancing system efficiency and scalability.
- Embedded MQTT and REST API for real-time IOT communication, enabling efficient data publishing and retrieval.
- Incorporated blockchain technology for secure data storage and controlled access, safeguarding sensitive IoT information.

TATA Consultancy Services

Software Engineer (Full-time) — Python, Flask, SQLAlchemy, REST API, MySQL, HTML, JavaScript

June 2021 – June 2023

Bangalore, India

- Initiated and established an automated operations platform with role-based access, real-time issue tracking, and automated reporting, saving 840+ hours annually and improving issue reporting accuracy by 25% for testing engineers.
- Programmed and optimized a Flask-based RESTful API backend with SQLAlchemy, improving query execution efficiency and reducing API response time by 15%, allowing the system to handle 20% more concurrent user requests.
- Architected and maintained a relational database schema using MySQL and MariaDB, optimizing query performance through indexing, connection pooling, and query caching, leading to faster data retrieval and system responsiveness.
- Streamlined cloud deployment by automating CI/CD pipelines using Jenkins and Docker, reducing API deployment time by 30% while ensuring high availability and scalability in production.
- Led the automation of testing frameworks using PyTest and Selenium, reducing manual testing time by 40% and accelerating release cycles.
- Coordinated with front-end developers to integrate Flask-based backend APIs with the user interface, enhancing cross-functional workflow and improving application responsiveness using HTML, CSS, and JavaScript.
- Engaged with stakeholders to identify and prioritize feature enhancements, driving a 15% increase in product functionality and user satisfaction based on feedback from executives and managers.

Skills

Programming Languages: Python, Rust, C/C++, SQL, HTML, CSS, JavaScript, Golang

Web & Backend Development: Flask, Django, RESTful API, SQLAlchemy, Numpy, Pandas, Matplotlib, FastAPI, API design

Databases: MongoDB, PostgreSQL, MariaDB, CockroachDB, Redis

Messaging & Stream Processing: MQTT, Apache Kafka, Apache Flink, RabbitMQ

Testing & Quality Assurance: Pytest, UnitTest, Selenium, Postman

Blockchain & Distributed Systems: Ethereum, IPFS

Development Tools & IDEs: Docker, PyCharm, Jupyter Notebook, Visual Studio, Postman, Linux, GitHub, Jenkins

Software Development & Methodology: Agile, SDLC, Backend Development, Data Structures, Algorithms, Automated Testing

DevOps & Cloud: AWS, CI/CD, Jenkins

Selected Projects and Research

[ckks-engine](#) | *Rust, CKKS encryption scheme*

December 2024

- Built a Rust crate implementing the CKKS homomorphic encryption scheme for privacy-preserving computations.
- Implemented encrypted arithmetic and string operations to process sensitive data securely.

Secure Software Execution and Licensing Framework | *Python, TPM, Cryptography*

July 2024

- Designed a TPM-based licensing framework for software integrity and security.
- Streamlined RSA key management leveraging in-memory computation of software to mitigate disk-based risks.
- Enforced user authentication, access control, and secure namespace isolation for critical operations.

Cinema E-Booking System | *Python, React.js, AWS*

April 2024

- Developed a React.js & Python-based platform for movie browsing, seat selection, and ticket booking.
- Integrated real-time seat availability, a responsive UI, and deployed the system on AWS for demo purposes and showcasing scalability.