

# 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. Skilled in Python, Rust, C++, and cloud technologies, with experience collaborating on cutting-edge research in Web3 and IoT security. 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**

*Web3 Research Assistant — Python, RabbitMQ, Erasure Coding, 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 IPFS, 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 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.
- Deployed RESTful APIs following OpenAPI standards, enabling robust API interactions for both web applications and command-line interfaces (CLI). This enhanced usability, automated testing coverage, and user engagement, increasing user satisfaction by 20%.
- Refined cloud deployment strategies by automating CI/CD processes, boosting API deployment speed by 30% while maintaining high availability.
- Coordinated with front-end developers to achieve seamless integration of Flask-based backend APIs with the user interface utilizing HTML, CSS, and JavaScript
- Identified and prioritized new feature recommendations by engaging with corporate executives and department managers, resulting in a 15% increase in product functionality based on user feedback.

## Skills

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

**Frameworks/Libraries/Technologies:** Flask, SQLAlchemy, Numpy, Pandas, Matplotlib, Git, MQTT, MongoDB, TPM, IPFS, Ethereum, AWS, MySQL, PostgreSQL, Apache Kafka, Apache Flink, MariaDB, RabbitMQ, Celery, CockroachDB, NoSQL, Redis

**Tools:** Docker, PyCharm, Jupyter Notebook, Visual Studio, Postman, Linux, Github, Jenkins

**Concepts:** Backend Web Development, Data Analysis, Data Structures and Algorithms, Data Security and Compliance, Agile Methodology, Blockchain, Web3, Cryptography, Erasure Coding, CI/CD pipeline, Software Development Life Cycle, Automated Testing

## 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.

## Leadership / Extracurricular

**REVA Coders Club**

*Treasurer*

**August 2020 - June 2021**

*REVA University*

- Managed the REVA Coders Club's financial resources, including financial planning, budgeting, and cost tracking.
- Oversaw a crucial part in planning coding contests, workshops, and events with an emphasis on financial factors.
- Collaborated with a team of six club officers and leaders to allocate 1,500 USD for diverse club activities and initiatives