Gopinath Balaji

217-200-0234 gbalaji4@illinois.edu linkedin.com/gopinathbalaji github.com/GopinathBalaji

Technical Skills

Languages: C/C++, Java, Python, Go, PostgreSQL, HTML, CSS, JavaScript, TypeScript, C#
Technologies: Linux, Git/GitHub, RabbitMQ, Docker, Helm, GCP, AWS, MongoDB, Angular, React, Spring Boot, .NET
Core Competencies: Software Engineering, Machine Learning, Data Engineering, Distributed Systems, CUDA Parallel Programming, Computer Vision, Data Analytics

Experience

Campus Recreation - University of Illinois May 2024 – May 2025
Software Engineer *Champaign, Illinois*

- Developed an Intramural League Management System with microservice architecture using Java Spring Boot & PostgreSQL, reducing scheduling conflicts by 40% through real-time availability checks.
- Designed React frontend with RESTful APIs for score updates and standings calculation, potentially serving 100+ weekly users across 10+ sports leagues.
- Collaborated with the cross-functional teams to optimize database queries and implement caching strategies, reducing API response times by 40% and lowering server load by 25%.

Illini Union - University of Illinois Oct 2023 – May 2024
Software Engineer *Urbana, Illinois*

- Constructed a full-stack web application using React, MongoDB, Express.js and Node.js for the Multimedia department enabling over 200 students and organizations to seamlessly reserve event spaces and equipment.
- Engineered RESTful APIs with Node.js and Express.js to manage event scheduling, user roles, and equipment inventory—reducing manual booking errors by 30% and ensuring a scalable, maintainable backend architecture.
- Built a React frontend with secure authentication and real-time booking updates, achieving 90% user satisfaction.

Department of Chemistry - Univeristy of Illinois Aug 2023 – Oct 2023
Software Engineer *Urbana, Illinois*

- Developed a full-stack laboratory equipment booking system on a Linux platform using .NET, C#, TypeScript, and Angular, supporting 20+ lab instruments and serving 50+ monthly users.
- Designed and implemented Entity Framework for SQL database schemas on GCP and RESTful APIs to support robust CRUD operations, accelerating reservation processing time by 25%.
- Integrated Git version control and automated CI/CD pipelines with GitHub Actions in an Agile environment, achieving 40% faster deployment cycles and maintaining 100% code review compliance.

Projects and Research

Fault-Tolerant Distributed Systems based Chat Application | *C++, CMake, Boost.Asio, Go*

- Constructed scalable, fault-tolerant distributed chat system using C++17 with Raft consensus and IS-IS multicast protocols, achieving automatic leader election and log replication across multiple nodes.
- Applied concurrency control through MVTO (Multi-Version Timestamp Ordering) and Lamport clocks to ensure message consistency in partitioned networks.

Kubernetes Microservices Video-to-Audio Converter | *Kubernetes, Helm, Amazon AWS, Docker, Python*

- Engineered and deployed a Python-based microservices application that converts video files to audio, utilizing Kubernetes (AWS EKS) for orchestration and Docker for containerization.
- Orchestrated deployment of four distinct microservices (authentication, gateway, converter, notification) with secure API endpoints, JWT-based authentication, and asynchronous task handling via RabbitMQ.
- Automated deployment of MongoDB and PostgreSQL databases, as well as RabbitMQ, using Helm charts.

Education

University of Illinois Urbana-Champaign Aug 2023 - May 2025
Master of Science in Computer Science-Bioinformatics *Champaign, Illinois*

- **Relevant Coursework:** Topics in Software Engineering, Distributed Systems, Applied Parallel Programming, Advanced Database Systems, Machine Learning for Bioinformatics, Deep Learning for Healthcare, Algorithms

SRM Institute of Science and Technology Jul 2019 - May 2023
Bachelor of Technology in Computer Science with specialization in IoT (GPA: 3.84 / 4.00) *Chennai, India*