SANDHYA BALU

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Education

Arizona State University - *Masters in Computer Science; CGPA: 4.0*	**Aug 2021 - May 2023**
Jawaharlal Nehru Technological University - *Bachelors in CS; CGPA: 8.3*	**Sep 2014 - May 2018**

Technical Skills

Languages: Java, JavaScript, Kotlin, TypeScript, Python
Frameworks: Spring Boot, Spring Security, Spring Cloud, Hibernate, Ktor, Angular, React.js, RESTful APIs
Databases: MongoDB, OracleDB, PostgreSQL, Redis (caching), Hibernate ORM, JDBC
Cloud & DevOps:: AWS (EC2, S3, Lambda, Cognito), Docker, Kubernetes, AWS Certificate Manager (ACM), ELK Stack (Elasticsearch, Kibana, Logstash)
Web Technologies: HTML5, CSS3, Angular.js, REST/GraphQL, WebSocket, Webpack, JUnit, Mockito
Others: Git, Jenkins, Maven, Postman, Swagger, Jira, Confluence, Prometheus, Grafana, ELK Stack, AWS, SVN

Professional Experience

Software Engineer - *Kubra*   **May 2023 - Present**

- Designed and implemented a microservice to dynamically create SQS queues for each incoming file, leveraging Java virtual threads to enable high-speed parallel data processing from AWS S3. .
- Built a high-throughput consumer application that processes over **2M+ SQS messages/hour** using coroutines for concurrency and achieving a 35% boost in throughput.
- Developed robust MongoDB migration scripts using **Mongock and a single-thread executor**, enabling long-running migrations with improved error handling and rollback capabilities.
- Delivered RESTful APIs within a Spring microservices ecosystem for utility account management, streamlining customer operations for **over 250,000 users across multiple services.**
- Implemented a service address search feature using **anagram-based indexing** and threshold matching algorithms for enhanced query resolution in a utility management system improving search accuracy by **28%** .

Environment: Java, Spring Boot, Spring Security, Hibernate, AWS (S3, SQS), Docker, React.js, MongoDB, Postman, Swagger, Kafka, Kotlin, Ktor, Otel, Honeycomb

Software Engineer - *Health net Global, India*   **Dec 2020 – Aug 2021**

- Implemented a scheduling system that **connected 1M+ care providers with patients** daily, utilizing queuing theory concepts to optimize workflows, ensuring timely delivery of on-demand services.
- Leveraged PDF generation tools in Angular to design and implement a system for viewing, previewing, and downloading prescriptions and discharge summaries, enabling seamless document access for doctors and patients.
- Automated the deployment workflow using Firebase Hosting with GitHub Actions CI/CD, cutting deployment time from hours to minutes and ensuring version consistency. , **decreasing deployment time by 80%** .
- Integrated **OAuth2 with JWT for secure login via Google and custom providers**, implementing RBAC and safeguarding APIs with high availability and fault tolerance .
- Developed Angular SPA leveraging NgRx stores, route guards for secure validation, real-time vital monitoring via linear charts, automated alerts, and RESTful APIs for patient care management.

Environment: Angular, Kotlin, Firebase, Github, Postman, ngrok, JavaSript, mongodb, Restful APIs, Postman

Software Engineer - *IVY Comptech Pvt Ltd, India*   **June 2018 – Dec 2020**

- Architected and developed a cross-platform communication framework enabling the Angular-based web application to signal readiness to the native mobile wrapper, leveraging Vanilla JavaScript to facilitate seamless integration, efficient rendering, and interoperability between web and native environments.
- Built a real-time odds streaming pipeline with SignalR and resilient WebSocket handling, processing **50K+ updates/minute** with <100ms latency. during heavy live sports betting sessions.
- Built a content management system supporting **300+ dynamic marketing campaigns per month**, enabling campaign configuration, rich text editing, A/B test setup, and real-time scheduling using Angular.
- Designed and developed a scalable SPA-based real-time health monitoring application for EPOS and kiosk systems using Angular, enabling automated fault detection and instant status updates.
- Engineered the BetMGM B2C sports betting web application, a high-revenue, large-scale project, using Angular to implement scalable architecture, and real-time betslip functionality with RxJS Observables, driving platform growth and ensuring cross-browser and platform compatibility.

- Implemented session-based authentication in Angular using ASP.NET SessionId cookies for user state persistence, ensuring secure cross-origin authentication.

Environment: Angular, .Net , SVN, IIS, JavaSript, MYSQL, Restful APIs, Postman, Agile/Scrum

Intern - *Truzio technologies, India*   **Dec 2017 – Apr 2018**

- Automated the JNTUK Registrar Office's maintenance of educational records using a centralized database and workflows, reducing the need for staff..
- Implemented messaging system and internal node logging, streamlining grievance management for all users.

Odoo, PostgreSQL, PgAdmin, Javascript, Python, PHP, HTML, CSS, XML

Academic Projects

Secure Hospital System Website | *Java, Spring Boot, Angular.js, AWS, Hyperledger fabric*   **Jan 2022-May 2022**
  ∗ Designed and developed a secure hospital system with several security features which can defend the website against Cyber attacks and also developed digital assistants to the website.

Survey On Web Data Scrapers | *Selenium, Puppeter, Scrapy, Web driver, API*   **Jan 2022-May 2022**
  ∗ Designed and Built a crawler, scraped the content accross the social media sites using various scraping tools and further made a comparative analysis on them on a predefined metrics.

American Sign Language Fingerspelling | *Python, posenet, CNN, segmentation, TensorFlow*   **Aug 2021-Dec 2021**
  ∗ Built a real-time ASL finger spelling translator by interpreting the captured hand gestures and using PoseNet model to generate the wrist points. trained the CNN model with the segmented images to predict the hand signs.

Income Prediction | *Python, Matplotlib*   **Aug 2022-Dec 2022**
  ∗ Creating market profiles by analyzing Census data on attributes such as age, education, occupation, and race to identify potential targets based on salary and other factors.

Spatial Data Analysis | *Apache Sedona, Spark, Python, Pydeck*   **Jan 2023-May 2023**
  ∗ Implemented spatial queries (range, k-NN, spatiotemporal) on NYC taxi trajectory dataset with visualization layer. Processed 10M+ records with sub-second query response times.

Extracurricular Activities

- **Teaching Assistant:** August 2022 - May 2023: Arizona State University, Tempe

- **Grace Hopper Scholar:** September 2022: Arizona State University

- **University Innovation Fellow:** March 2017 - May 2018: Jawaharlal Nehru Technological University, India