Gaurav Avula

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Summary

Innovative Full Stack Developer with 6 years of experience in designing highly scalable microservices and AI-driven applications using Spring Boot, React.js, AWS, and DevOps automation. Expertise in reducing API response times by 40%, leading teams in cloud migrations, and enhancing security with OAuth2 & JWT. Passionate about cloud-native architectures, high-performance engineering, and intelligent automation that drive business growth and user engagement.

Education

University of North Carolina Charlotte, MS in Computer Science   Aug 2022 – Dec 2023

- **Coursework:** Algorithm and Data Structures, Cloud Computing for Data Analysis, Software System Design and Implementation, Computer Communication and Networks, Network Based Application Development, Mobile Application Development, Visual Analytics, Intelligent Systems

University at Buffalo, BS in Computer Engineering   Jan 2015 – May 2019

- **Coursework:** Algorithms for Modern Computing Systems, Operating Systems, Data Structures, Software Engineering Concepts, Computer Vision and Image Processing, Data Intensive Computing, Real Time Embedded Systems, Hardware and Software Integration

Experience

Full Stack Developer, DFW Airport – Irving, TX   Feb 2024 – Current

- Architected 10+ Spring Boot microservices, boosting operational efficiency by 30% and cutting downtime by 25%. Led mentorship programs, coaching junior developers in microservices architecture.
- Developed AI-powered predictive models to forecast passenger flow and optimize staff allocation, enhancing operational efficiency by 15%.
- Implemented authentication and authorization mechanisms using OAuth2 and JWT to secure APIs in compliance with aviation industry standards.
- Leveraged natural language processing (NLP) models to analyze passenger feedback, enabling data-driven decisions that improved customer satisfaction by 12%.
- Ensured cross-platform compatibility for web applications accessed via mobile devices, tablets, and kiosks.
- Designed dashboards for airport management to monitor passenger flow and operational efficiency using libraries like Chart.js or D3.js in React JS.

Full Stack Developer, OneIT UNC Charlotte – Charlotte, NC   Aug 2022 – Dec 2023

- Developed and deployed LabMap, a sophisticated web application leveraging REST APIs for robust back-end functionality and React front-end for intuitive user interface and effectively showcasing real-time statuses of laboratory computers.
- Introduced Selenium WebDriver test scripts ensuring robust validation of REST API interactions and React frontend components.
- Optimized REST API performance, reducing response times by 40% (from 3s to 1.8s) and improving user retention by 15%.
- Collaborating closely with UX/UI designers to translate design mockups into interactive and visually appealing frontend components in React.js.
- Led the development of dynamic dashboards using React.js and automated batch processes to optimize stock maintenance operations, streamlining stock reordering workflows and enhancing overall efficiency in inventory management.

Full Stack Developer, Credit Suisse Group – Raleigh, NC   Aug 2020 – Aug 2022

- Engineered batch processing in Java Spring, reducing data processing time from 6 hours to 2 hours and

improving system scalability

- Worked on a React user-customizable dashboard for seamless viewing of emailed reports, allowing users to personalize their report display for better accessibility and ease of use.
- Implemented the backend by setting up a dedicated email account and designing dynamic batch jobs to automatically read, retrieve, and transform files into PDF format, streamlining data processing and seamlessly delivering reports to the dashboard for real-time user access.
- Migrated multiple ASP.NET application components to Angular 2 for improved design, performance, and scalability, laying the foundation for future development.
- Addressed the log4j vulnerability by updating dependencies across all applications and refactoring outdated logging methods, ensuring enhanced security and compliance with immediate patch updates.
- Streamlined daily data sourcing by developing new REST API endpoints, implementing caching strategies, and optimizing database configurations with efficient merging algorithms, reducing the time required to consolidate data before updating the central database.

Software Engineer, Prosurix Inc. – Buffalo, NY   Aug 2019 – Aug 2020

- Redesigned the user interface to create a unified appearance across both iOS and Android applications, enhancing user experience and ensuring easy navigation.
- Implemented NFC tap feature for the Android application using the Android NFC API, enabling seamless and efficient interaction through NFC technology.
- Provided continuous support for both iOS and Android applications, ensured compatibility and functionality during platform updates on both iOS and Android.
- Utilized AWS Lambda to process images submitted by users, record new data, train a machine learning model, and store the data in S3 buckets for an Android application, enabling efficient image recognition and retrieval of detailed information through image processing and machine learning techniques.

Internships

Machine Learning Intern, Delta Cognition – Remote   Nov 2024 – Current

- Developed and deployed predictive maintenance models using Python, TensorFlow, and Scikit-learn to analyze real-time sensor data from industrial machinery, reducing unexpected equipment failures by 20%.
- Performed rigorous unit and integration testing of machine learning pipelines and APIs using PyTest and Unittest, ensuring data consistency and reliable model predictions.
- Developed REST APIs to expose trained models for real-time failure prediction and integrated them with IoT systems for continuous monitoring and anomaly detection.
- Collaborated closely with data scientists and software engineers to align machine learning solutions with business goals and application requirements.

Software Developer Intern, Global Payments – Atlanta, GA   Jun 2023 – Aug 2023

- Upgraded outdated dependencies and refactored corresponding methods across all Spring applications, ensuring the use of the latest secure versions to enhance application security and stability.
- Enhanced REST API error handling by implementing checkpoints to validate input data, catching and logging multiple internal exceptions, and providing detailed error messages for improved clarity and troubleshooting.
- Implemented automated CI/CD pipelines with Jenkins & GitHub Actions, reducing deployment time by 50% and improving reliability. Facilitated weekly sprint planning, streamlining team workflows.
- Configured Swagger for comprehensive documentation of all newly developed and rigorously tested REST APIs, facilitating clearer communication and more efficient utilization by front-end and back-end teams.

Projects

Visual Intelligence with OpenCV

- Explored advanced image processing techniques using OpenCV to detect edges, key points, and cursors in images.
- Implemented template matching algorithms to identify patterns and objects within images.
- Conducted K-Means clustering on image key points, optimizing feature extraction and analysis.

- Tools Used: Python, OpenCV

Food Truck Finder

- Built a real-time food truck locator app with geo-location search, helping users find vendors 40% faster and reducing server load by 30% through API optimizations.
- Collaborated with team members to gather requirements, create user stories, and design the system architecture, resulting in a well-structured and scalable application optimized for Linux-based environments.
- Tools Used: Java, React JS, SQL

Personal Budget Application

- Developed a budgeting app used by 200+ users, allowing real-time spending tracking and reducing overspending by 25%
- Implemented insightful visualizations to prevent budget overruns. Implemented GitHub Copilot for code generation, ensuring intuitive interface and accessibility.
- Tools Used: Java, React JS, Firebase

Technologies

Category	Technologies
Languages	Java, Python, JavaScript (ES6+), TypeScript, Shell Scripting
Backend	Spring Boot, Node.js, Express.js, RESTful APIs, GraphQL
Frontend	React.js, Angular, HTML, CSS, Tailwind CSS
Databases	SQL (PostgreSQL, MySQL, Oracle), NoSQL (MongoDB, DynamoDB, Firebase)
Cloud & DevOps	AWS (Lambda, EC2, S3, DynamoDB, API Gateway), Microsoft Azure, Docker, Kubernetes
CI/CD & Automation	Jenkins, GitHub Actions, Terraform, CloudFormation
Testing & Debugging	JUnit, Jest, Selenium, Postman