

# Kailash Muthu

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## EXPERIENCE

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### Vanguard

Jun 2023 – Present

*Software Engineer II - Full Time*

*Charlotte, NC*

- Optimized **NestJS** application endpoints by enabling concurrent requests via **multithreading** and **DNS caching** of EC2 instance IP, achieving a 50% reduction in latency and improving API request throughput
- Engineered a **microservice-based ETL pipeline** with **AWS Lambda** and **Glue**, transforming hourly batch processing into real-time reporting, thereby accelerating the resolution of trading issues for business leaders
- Streamlined operational efficiency by implementing **Performance Testing as a Service**, stress-testing **REST API** endpoints and optimizing **EC2** configuration based on test insights, achieving a 30% cost reduction
- Enhanced observability and testing by integrating **OpenTelemetry** tracing for requests and **Cucumber.js** integration for **E2E testing** into the CI/CD pipeline, resulting in improved test coverage and issue detection.
- Led the migration to **Okta OAuth** for all API endpoints and authorization request headers, enhancing security and standardizing authentication across all regions, which resulted in increased system reliability and data protection.

### Truist

Dec 2022 – May 2023

*Junior Software Engineer - Contract*

*Raleigh, NC*

- Ensured API response integrity by developing classes for **exception handling** and **validation**, coupled with **Splunk** integration for alerting and metrics, significantly improving diagnostics during production issues.
- Leveraged **Swagger** for API specification redesign, optimizing several APIs' response and request structures to meet evolving business requirements, resulting in a better alignment with client-side functionalities.
- Strengthened application security by rectifying **Wiz** and **SonarQube** violations and upgrading **Node.js** packages and the overall application Node version, thereby aligning with the current compliance standards.
- Optimized application infrastructure by removing redundant cloud resources and policies through updating **CloudFormation stacks**, aligning with minimal access principles to enhance resource security.
- Developed and implemented advanced **SQL stored procedures** to optimize database queries, achieving a 30% reduction in data retrieval times and enhancing report generation efficiency for key business operations.

### CareYaya Health and Technologies

Jan 2023 – Mar 2023

*Software Engineer - Freelance*

*Durham, NC*

- Created **10+ API methods** within a **Remix.js** application for a patient-client messaging application, facilitating real-time data exchange and interactive communication functionality.
- Implemented a layered backend architecture using the repository design pattern with **Prisma ORM** for **SQLite** database interactions, enabling more scalable and performant data querying capabilities.
- Provisioned **AWS cloud resources** to deploy the messaging application as a microservice and route to the main web service, allowing feature modularization and allowing cross application interaction.
- Designed an accessible, user-centered front-end layer using **React.js** and **Tailwind CSS**, adhering to **WCAG** standards and leveraging Google's **Material Design** for cohesive application aesthetics and functionality.

## EDUCATION

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### University of North Carolina at Chapel Hill

Chapel Hill, NC

*Bachelor of Science in Computer Science*

- GPA: 3.93 | Graduated with Highest Distinction
- Honors Program - Honors Carolina Laureate | Dean's List | Phi Beta Kappa (Top 1% Invite)
- Relevant Coursework: Analysis of Data Structures, Algorithms and Analysis, Modern Web Programming, Foundations of Software Engineering, Digital Logic and Computer Design (Teaching Asst.), Computational Photography, Machine Learning

## TECHNICAL SKILLS

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**Languages:** Typescript, Python, Java, C, HTML/CSS

**Frameworks and Tools:** NestJS, Node.js, AWS, Cucumber, Git, Postman, Bitbucket, Bamboo, Splunk, Angular