RUMESH SREE KRISHNASAMY GNANAVEL

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CAREER SUMMARY

Versatile Software Engineer and Data Practitioner with 2+ years of experience across full-stack development, data engineering, and AI-driven solutions. Skilled in Java, Python, Angular, React, Spring Boot, and cloud platforms (Azure, AWS, Databricks). Experienced in building scalable applications, optimizing data workflows, and deploying machine learning and RAG-based systems. Adept at delivering business impact through both software engineering and data science projects.

EDUCATION

National University of Singapore   **Aug 2024 – Present (Expected Nov 2025)**

Master of Computing - Specialization in Computer Science

- GPA: 4/5
- Relevant Coursework: Distributed Systems and Databases, Data Mining, Cloud Computing, Information Visualization, Simulation and Modelling, Computer Networks, Computer System Performance Analysis

Thiagarajar College of Engineering(Anna University), India   **Aug 2018 - May 2022**

Bachelor of Technology in Information Technology

- CGPA: 9.35/10
- Relevant Coursework: Software Engineering, Database Management Systems, Data Structures, Object-Oriented Programming, Data Analytics, Machine Learning, Big Data Tools and Technologies, Computer Networks

WORK EXPERIENCE

Data Science Intern   **May 2025 - Present**

PSA International, Singapore

- Enhanced retrieval and backend logic of a RAG-based chatbot (eIDP AI Assistant Bot) using Azure OpenAI, Azure App Services, and AI Search, improving search accuracy and user experience.
- Built and orchestrated data pipelines to support scalable retrieval workflows.
- Explored Databricks Genie and conducted POC demonstrations to PSA Singapore & International Data Science teams.
- Deployed a full-stack Databricks App integrating React (frontend) and FastAPI (backend).
- Building Scanalyze, an AI-powered system that combines OCR, schema-guided extraction, and large language models to turn scanned documents into structured, machine-readable JSON.

Software Engineer   **Jul 2022 - Jul 2024**

Trimble Inc., India

- Developed Angular-based web applications (Places UI, Document Management System) with 30% faster load times.
- Modernized Java-based legacy systems (FleetCockpit, FleetWorks) using GWT, EJB, Spring Boot, reducing maintenance issues by 25%.
- Designed and deployed microservices with Spring Boot & MySQL, integrated with CI/CD pipelines to enable automated deployments, handling 500k+ daily transactions.
- Awarded Bravo recognition (2,000+ coins in under two years) for high performance.
- Mentored 4+ engineers, delivering training sessions on machine learning and coding best practices.

Graduate Technical Intern   **Jan 2022 - Jun 2022**

Trimble Inc., India

- Diagnosed and resolved 20+ production-critical issues, improving stability and uptime.
- Contributed to high-traffic modules supporting 10,000+ active users, accelerating delivery by 20%.

SKILLS AND LANGUAGES

- **Programming Languages:** Java, Python, SQL, C, PHP, JavaScript, TypeScript
- **Cloud & Data Platforms:** Azure (App Services, OpenAI, AI Search, Cosmos DB), AWS (EC2, S3, Lambda, Elastic Beanstalk)
- **Frontend Development**: Angular, React, Streamlit, Flutter, GWT, HTML5, CSS3, Bootstrap, Modus (Trimble framework), Tailwind
- **Backend Development**: Spring Boot, EJB, FastAPI
- **Data Engineering & Big Data:** Databricks (Genie, Apps), Apache Spark, Hadoop, Kafka, ETL Pipelines
- **Database Management:** MySQL, Snowflake, PostgreSQL, Redis
- **Data Science & ML**: scikit-learn, pandas, NumPy, seaborn, Matplotlib
- **DevOps & Infrastructure**: Docker, Kubernetes, Jenkins, CI/CD, Git
- **Visualization & Reporting**: Power BI, Tableau
- **Security & Performance**: OAuth, JWT, SSL/TLS, Load Balancing
- **Tools & Productivity**: GitHub, GitLab, Jira, Confluence, Jupyter Notebook, VS Code, Figma, Firebase
- **Operating Systems**: Linux (Ubuntu), macOS, Windows
- **Languages Spoken**: English (Fluent), Tamil (Native)

HONOR AWARDS

- **Best Project Award** at the Indo Universal Collaboration for Engineering Education (IUCEE), 2021.

- **Runner-Up**, Appathon 2020 conducted by Thiagarajar College of Engineering, in collaboration with a Member of Parliament (MP), India.
- **Top 4 Nominee**, Best Outgoing Student, Thiagarajar College of Engineering - 2022

KEY PROJECTS

eIDP AI Assistant Bot   **May 2025 - Present**

PSA International, Singapore
- Enhanced retrieval and backend logic of a RAG-based chatbot, delivering improved consistency and user experience.
- Tuned prompt structures and query parameters to optimize hybrid search results using Azure AI Search and OpenAI.

PlastiCrush – Cloud Recycling App

NUS, Singapore   **Jan 2025 – April 2025**
- Designed a smart recycling system combining Flutter mobile app and IoT-enabled kiosks for plastic waste submission.
- Deployed a scalable cloud architecture using AWS Elastic Beanstalk, EC2, and S3 to ensure scalable and cost-efficient operations.

Peer to Peer Maze Game   **Aug 2024 - Dec 2024**

NUS, Singapore
- Developed a fault-tolerant multiplayer game using Java RMI, simulating resilient peer-to-peer communication in distributed environments.
- Ensured fault recovery, node replication, and scalability under node failures.

Predict Resale Price of Used Cars   **Aug 2024 - Dec 2024**

NUS, Singapore
- Built ML models using XGBoost, Random Forest, KNN, and Gradient Boosting to predict used car resale prices in Singapore.
- Performed feature engineering and model evaluation using cross-validation and RMSE metrics.

Distributed Database System for Warehouse Management   **Aug 2024 - Dec 2024**

NUS, Singapore
- Implemented a distributed PostgreSQL (Citus) database to simulate real-time warehouse transaction systems.
- Optimized performance using sharding, indexing, and query parallelization for high-concurrency environments.

PUBLICATIONS

- *Solutions for Improving Education System in Pottapatti Village, Madurai,* ResearchGate, Dec 2021. Link
- *Problems and Solutions to Reduce Carbon Footprint, ResearchGate*, Dec 2021. Link

CO-CURRICULAR ACTIVITIES

Band Member, NUS Tamil Music Club	**Aug 2024 - Present**
Blog Writer, GeeksforGeeks, Medium	**Nov 2021 - Present**
Core Member, Trimble Social Committee	**Jun 2022 - Jul 2024**
Band Member, Trimble Music Club	**Jun 2022 - Jul 2024**
Professional Member, TCE National Service Scheme (NSS)	**Jan 2018 - Jan 2024**
President, IUCEE-EWB TCE Student Chapter (IETSC)	**Jan 2021 - Jan 2022**
Website Officer, IETSC	**Jan 2021 - Jan 2022**
General Secretary, TCE English Club	**Jan 2021 - Jan 2022**
Design Head, TCE Quiz Club	**Jan 2018 - Jan 2019**

HOBBIES AND INTERESTS

Singing, Badminton, Cooking, Reading Books