

RITHISH MURUGAN

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PROFESSIONAL SUMMARY

Software Engineer with a Master's in Computer Science and hands-on experience in Python development, data automation, and AI-driven systems engineering. Skilled in building Agentic AI agents with RAG pipelines, integrating Supabase, Pinecone, and n8n for intelligent workflow automation and data orchestration. Adept at developing and debugging REST APIs, optimizing backend pipelines, and applying data validation and access control for reliable reporting and process accuracy. Passionate about crafting smart, efficient AI solutions that deliver real impact.

EDUCATION

Illinois Institute of Technology, Chicago, IL — Master's in Computer Science	May 2025
St. Joseph's College of Engineering, Chennai, INDIA-- Bachelor of Engineering	May 2023

TECHNICAL SKILLS

- Languages: **Python, SQL, R, JavaScript** (application-level), HTML, CSS
- Backend & Data Modeling: **ETL Pipelines SQL queries**, database optimization, workflow automation
- Enterprise Platforms & APIs: **REST APIs, Postman, ServiceNow workflow (Flow Designer, ACLs)**, n8n automation
- Cloud/Databases: **AWS (S3, Redshift, Lambda, EC2, Bedrock)**, Pinecone vector database, Supabase
- AI/ML Tools: **RAG, Agentic AI, OpenAI APIs**, Hugging Face, LangChain, TensorFlow (basic), Scikit-learn
- QA & Security: **pytest**, API validation, **access control policies**, data integrity, Unit Testing,
- Visualization and collaboration Tools: **Tableau**, Matplotlib, Seaborn, Excel, Git, Jupyter, VS Code
- Other: Agile methodology, Technical Documentation, Performance Optimization, Debugging, vibe coding

PROFESSIONAL EXPERIENCE

Software Engineer eAlliance Corporation, IL, USA (Remote)	Jul 2025 - Present
• Engineered Agentic AI agents with RAG pipelines for automated reasoning and business workflows.	
• Built a guest concierge AI agent , integrating frontend apps, n8n workflows, and backend databases .	
• Built a vendor-matching agent simulating Q2C workflows , applying distributed ETL and data integrity checks.	
• Automated data flows and integrations across APIs and cloud systems, ensuring fault-tolerance and scalability .	
• Applied access control principles and data validation to ensure secure and accurate reporting pipelines.	
• Debugged and optimized Python scripts across workflows, reducing execution errors by 20% .	
• Explored LLM APIs (OpenAI, Hugging Face) by testing simple Python-based integrations for internal learning.	
Software Engineer Virtualan Software LLC, IL, USA	May 2024 – Aug 2024
• Automated backend pipelines using Python + SQL to consolidate and validate large datasets.	
• Configured and tested REST APIs with Postman & Swagger , ensuring reliable system integrations.	
• Integrated AWS (S3, Redshift) with backend workflows, increasing scalability of reporting systems.	
• Worked with QA teams to implement data integrity checks and access controls .	
• Participated in Agile sprints , contributing to design discussions on workflow configuration and integrations .	
• Assisted with Tableau dashboards for system performance and telemetry-driven insights.	
Junior Software Engineer ZoomRx Healthcare Technology Solutions, India	Jan 2023 – Jul 2023
• Developed Python pipelines to process 1M+ survey records , improving data accuracy and reliability.	
• Optimized backend workflows, reducing update cycles by 40% and delivering insights faster to stakeholders.	
• Designed Tableau dashboards visualizing provider engagement, survey outcomes, and participation trends .	
• Conducted participation trend analysis across surveys, uncovering patterns that guided data driven strategies .	
Python Developer Intern Madras Networking Company, India	Jan 2022 – Jan 2023
• Built Python scripts to automate reporting and validation, reducing manual work by 30% .	
• Designed a basic employee tracking system (Python + SQL) managing 200+ records with accuracy.	
• Developed a lightweight dashboard prototype (HTML + Python + SQL) for weekly reporting.	
• Boosted DB performance by 60% via SQL optimization and team collaboration.	

TECHNICAL PROJECTS

Real-Time Hand Sign Detection using MediaPipe and TensorFlow (<i>Python, OpenCV, TensorFlow, MediaPipe</i>)	Jan 2025
• Built a gesture recognition system for 36 hand signs , achieving >90% accuracy in real time.	
• Integrated MediaPipe for landmark detection with TensorFlow classifiers to enhance precision.	
• Applied object-oriented design principles and AI integration to optimize interaction models.	