PRIYANKA KUMARAN

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PROFESSIONAL SUMMARY

Full-stack software engineer with years of experience building AI-powered applications using OpenAI, Anthropic, and other LLM providers with React, TypeScript, Node.js, and Express. Proven ability to take product features from vague abstract ideas to production-ready implementations deployed to customers. Self-starter and problem-solver motivated by curiosity and continuous improvement, with demonstrated expertise in fast-paced startup environments. Expert in breaking complex customer requirements into achievable plans and shipping features in record time while maintaining code quality through reviews and testing.

TECHNICAL SKILLS

- **Languages:** JavaScript (ES6+), TypeScript, Python, SQL, C#
- **Frontend:** React, Angular, HTML/CSS, Responsive Design
- **Backend & APIs:** Node.js, Express, FastAPI, RESTful APIs, OpenAPI, JWT, OAuth2, RBAC
- **AI/ML & LLM Tools:** OpenAI (GPT-3.5, GPT-4), Anthropic Claude, LangChain, RAG pipelines, Prompt Engineering, LLM Orchestration, Agent Workflows, HuggingFace, FAISS, Embeddings, LLaMA/Mistral
- **Databases:** MongoDB, PostgreSQL, SQL Server, Query Optimization
- **Cloud & DevOps:** AWS (EC2, ECS, S3, IAM), Docker, AWS CDK, GitHub Actions, CI/CD Pipelines
- **Testing & Quality:** Playwright, Automated UI Testing, Regression Testing, End-to-End Testing

PROFESSIONAL EXPERIENCE

QA & Test Automation Developer Intern – MESO Energy Platform **St. John's, NL, Canada**
Angler Solutions Inc. **Oct 2025 – Dec 2025**

- Worked as part of distributed team in fast-paced environment, identifying opportunities to make impactful enhancements to energy platform workflows through full-stack development with React and Python.
- Designed and implemented features in the application, collaborating with engineers to translate requirements into responsive React interfaces and secure RESTful APIs for production energy-sector dashboards.
- Built and maintained AWS infrastructure with Docker and GitHub Actions for automated deployments, ensuring production stability through CloudWatch monitoring and defect triage.
- Improved performance and reliability by optimizing database queries for data-heavy dashboards, refactoring shared components to reduce technical debt, and resolving user-reported issues.
- Designed automated testing suites using Playwright for comprehensive end-to-end regression testing, reducing post-release defects by 25% and accelerating validation cycles by 20%.
- Conducted code reviews and contributed technical documentation on components, APIs, and QA workflows to support team knowledge-sharing and onboarding in an Agile environment.

Full-Stack Developer - Financial Services Application Development **Chennai, India**
Virtusa - North American Region **Sep 2023 - Jul 2024**

- Designed and implemented new features for financial services applications using React, TypeScript, Node.js, and SQL in a distributed team, taking features from abstract requirements to production deployment.
- Integrated GPT-3.5 models to deliver intelligent document analysis and automated insights for wealth management applications, using prompt engineering to optimize response quality for advisory use cases.
- Collaborated with product team on changes to React application to improve customer experience for wealth management dashboards, implementing architecture improvements that increased performance by 18%.
- Built RESTful APIs using Node.js with clean architecture patterns, implementing JWT authentication and role-based access control for secure, scalable enterprise financial applications.
- Conducted code reviews and provided constructive feedback to team members, while improving performance and reliability of existing functionality through systematic refactoring and bug fixes based on user feedback.

PROJECTS

AI-Enhanced CRM with Retrieval-Augmented Generation **Memorial University of Newfoundland**

Capstone with Genesis | *React, FastAPI, LangChain, FAISS, HuggingFace, LLaMA/Mistral, Docker, PDF.js, AWS*

- Led a 4-member Agile team to build a full-stack, cloud-ready document intelligence application, developing a scalable FastAPI backend and responsive React frontend through rapid prototyping and iteration.
- Designed and implemented secure RESTful APIs with OpenAPI contracts, applying input validation, structured error handling, and authentication safeguards to ensure reliability and maintainability.
- Modeled and optimized PostgreSQL databases for high-throughput document ingestion, metadata management, and performant query execution supporting multi-tenant workloads.
- Deployed containerized services using Docker on AWS, integrating EC2/ECS, S3 for document storage, and IAM for secure identity and access management as part of deployment workflows.
- Integrated and optimized HuggingFace embeddings and LLaMA/Mistral models, refining retrieval and inference workflows through model selection and pipeline tuning to deliver production-ready AI interactions.
- Engineered RAG pipelines using FAISS-based vector search, cosine similarity, and caching, alongside JWT, RBAC, and OAuth2, improving retrieval latency by ~22% while enabling secure, multi-tenant access.
- Monitored performance using structured logging, metrics, and runtime diagnostics via AWS-native monitoring (e.g., CloudWatch-style logs and metrics), owning issue investigation during development and testing.
- Conducted user research sessions with potential end-users to validate product assumptions, translating qualitative feedback into actionable feature priorities and UX improvements that shaped the product roadmap

Reliable & Explainable AI for Brain Tumor Detection

Research Project | *PyTorch Geometric, GATv2, OpenCV, NumPy, Matplotlib*

- Built a Graph Neural Network (GATv2-based) model for multi-class brain tumor classification on 2,500+ MRI images, integrating attention mechanisms for interpretability and clinical reliability.
- Engineered a graph construction pipeline that segmented each 256×256 MRI image into 64 connected nodes based on Euclidean distance, effectively modeling spatial dependencies between brain regions.
- Designed image preprocessing workflows (normalization, skull-stripping, Gaussian blur, Otsu thresholding, and morphological transforms) to isolate and enhance relevant brain regions before graph generation.
- Developed feature embedding routines converting patch-level color and texture vectors into node tensors, improving representation consistency and model generalization across tumor classes.
- Implemented Grad-CAM-style node visualization and feature attribution heatmaps to interpret attention weights, delivering explainable insights into model decisions and region-level tumor focus.
- Tuned AdamW optimization, cosine learning rate scheduling, and class-weighted loss functions to balance dataset classes, improving training stability and model robustness, accelerating convergence speed by ~15%.
- Achieved high precision in pituitary tumor detection and produced interpretable attention maps linking key spatial features with clinical diagnostic cues, outperforming baseline CNN approaches.

EDUCATION

Master of Artificial Intelligence **St. John's, NL**

Memorial University of Newfoundland **Sept 2024 - Dec 2025**

Bachelor's in Information Technology **Chennai, India**

Anna University **Aug 2020 - Apr 2024**

CERTIFICATIONS

- AWS Certified Machine Learning Engineer - Associate
- Microsoft Certified: Azure AI Fundamentals
- Coursera - Mathematics for Machine Learning (Linear Algebra, PCA, Multivariate Calculus) & Accelerated Computer Science Fundamentals (Object-Oriented Data Structures in C++)