DEEP PATEL

deepatel089@gmail.com

Sr. Full Stack Developer / AI Engineer

SUMMARY

Applied **AI/ML Engineer** and Senior **Full-Stack Architect** with 8+ years of experience delivering production-grade systems across **Fintech**, **AI**, and **RegTech**. On the AI side, I design and deploy large-scale **ML/NLP** solutions, **LLM-based RAG** pipelines, surveillance models, and real-time **risk engines**, using *PyTorch, TensorFlow, Spark, Kafka,* and *SQL*. Experienced in applied **statistical modeling**, graph-structured data analysis, and production-grade **NLP pipelines**, blending analytical depth with an engineering mindset to deliver real-world AI systems. On the engineering side, I lead end-to-end system architecture and build scalable, high-performance platforms with Typescript*, Next.js/React, Node.js/NestJS, Python* **microservices**, and **event-driven patterns**. Strong cloud background across *AWS* and *GCP*, including **distributed data pipelines**, **containerized services**, and secure, compliant infrastructure. Proven track record improving signal accuracy, reducing false positives, and shipping robust, auditable systems aligned with SEC/FINRA standards.

CORE COMPETENCIES

- **AI/ML&Data Science:** LLM integration, NLP, transformer fine-tuning, RAG pipelines, model evaluation, embeddings
- **Full Stack Engineering**: React, Next.js, Vue, Node.js, Express, Python, Django, PHP/Laravel, Elixir/Phoenix
- **Analytics**: market surveillance, trading data analysis, alert reduction, risk detection features, A/B testing, KPI design, user behavior analysis, funnel and cohort analysis, dashboards
- **Growth Marketing**: SEO/SEM, content strategy, social campaigns, CRM/journeys, attribution, ROI analysis
- **Architecture**: Microservices, event-driven, micro-frontends, serverless, caching, API gateways, security, GPU-accelerated model training
- **Big Data Tech:** Spark, Kafka, Snowflake, PostgreSQL, MongoDB, Redis
- **Cloud & DevOps**: AWS/GCP/Azure, Docker, Kubernetes, CI/CD, observability, blue/green, canary deploys
- **Data & APIs**: REST, GraphQL, WebSockets, OAuth/OIDC/SSO, rate limiting, RBAC/ABAC, audit trails
- **Datastores**: PostgreSQL, MySQL, MongoDB, DynamoDB, Snowflake, Redis, IndexedDB

SKILLS AND ABILITIES

Frontend Technologies

- **Markup & Styling**: HTML5, CSS3, CSS-in-JS (styled-components, Emotion), Tailwind CSS, Material UI. Rechart, lightweight Chart.
- **JavaScript Frameworks & Libraries**: JavaScript, TypeScript, React, Vue, Next.js, Nest.
- **State Management**: ssssssRedux, Redux-Saga, Redux Toolkit.

Backend Technologies

- **Programming Languages & Frameworks**: Node.js, Express, Python, Django, PHP, Laravel, Elixir, Phoenix.
- **Databases**: MySQL, PostgreSQL, MongoDB, Snowflake, DynamoDB.

Architectures: Microservice architecture, serverless architecture, Event-driven architecture.

Cloud & DevOps

- **Cloud Providers**: AWS, GCP, Azure.
- **Containerization & Orchestration**: Docker, Kubernetes

AI/LLM:

- **LLM + RAG:** embeddings, vector DBs (Pinecone, pgvector, FAISS), retrieval chains, evaluation.
- **Agents/Automation:** task orchestration, tool-use, monitoring and alerts.
- **Deep Learning Frameworks / Model Training:** PyTorch, TensorFlow

Data/Analytics
- **Tools:** SQL, Python (pandas, NumPy), GA4, Mixpanel, Amplitude, Tableau, Power BI.
- **Experimentation:** A/B testing, Split.io, KPI frameworks, uplift analysis, segment-level reads.

Caching Strategies: Client-side cache, Server-side cache, Redis, CDN cache.

Testing & Quality Assurance

- **Testing Types**: Unit testing, Integration testing, TDD (ATDD, DTDD), A/B testing, Smoke testing.
- **Libraries & Platforms:** Jest, Jenkins Cypress, Reflect, Unguess, Split.io

API Technologies: RESTful API, Third-party API, GraphQL.

Growth/MarTech

- **Platforms:** Contentful, HubSpot, Salesforce, Intercom, Knock.
- **SEO/SEM:** structured data, technical SEO, GA4 attribution, campaign optimization.
- **Social/Ads:** Google Ads, Meta Ads Manager

Project Management & Collaboration

- **Methodologies**: Kanban, Scrum.
- **Version Control**: Git, GitLab, Bitbucket.

EXPERIENCE

Senior AI/Full Stack Engineer | Freddie Mac - Santa Monica, CA   2024.07 – 2025.09

Technologies (JavaScript, Typescript, Material UI, Tailwind CSS, styled-components, React, Vue, Next, Nuxt, Node.js, Express, Python, Django, PyTorch, TensorFlow, MySQL, MongoDB, AWS, Redis-DB caching, API caching, Indexed DB, TDD, Restful API, third party API, GraphQL, Scrum, Git, Jest, reflect, Split.io)

- Owned the **end-to-end development** of scalable, user-centric applications across **e-commerce**, **fintech**, **healthcare**, and **Web3** sectors, achieving a 30% increase in user engagement and a 25% reduction in load times while collaborating with a team of 10 developers.
- Led **AI model** enhancement initiatives focused on **risk and behavioral monitoring**, using **LLM-based pipelines** and feature extraction to detect anomalous user activities across large datasets.
- Developed and deployed **NLP pipelines** for **NER**, **entity resolution**, and **ontology extraction**, applying core **MLOps practices,** experiment tracking, metric monitoring, and reproducible pipelines, to ship **production-grade AI services** with an engineering-forward mindset.
- Performed advanced statistical modeling, clustering, and probability analysis while building g**raph-analytics workflows** for anomaly **detection**, **pattern extraction**, and **entity-level intelligence** across complex datasets.
- Partnered with product and **data science teams** to run scenario testing labs and calibration cycles for policy-driven AI models.
- Implemented **real-time streaming** via **Kafka** and **Spark** for high-volume communications data (voice logs, transactions, emails) used in supervised training and risk feature engineering.
- Implemented **real-time communication** using WebSockets and optimized **overall system performance** by designing the database architecture, utilizing Redis and indexed DB for caching, and employing server-side rendering (SSR), resulting in a 50% reduction in initial load times and a 20% improvement in SEO.
- Integrated API-based **surveillance services** with Node.js and Nest for efficient data transfer, batch retrieval, and parallel inference on **GPU instances**.
- Developed robust **data API services** with **API rate limiting** utilizing RESTful APIs and GraphQL, and implemented a **multi-currency account system** with **split payment** functionality through various payment gateways, enhancing transaction efficiency by 25%.
- Contributed to cross-functional initiatives for **LLM policy refinement**, reducing alert fatigue and improving model trust for internal audit reviews.
- successfully **led** complex frontend project, **architected** high-performance, reliable, and scalable projects that utilized **microservices**, **event-driven architecture**, micro-frontend architecture, and **serverless** functions, resulting in a 40% improvement in **system efficiency**.
- Engaged in the **Web3** and **AI** industries, focusing on **wallet authentication**, **crypto payments** with bank integration, and developing a responsive **RAG chatbot** specifically designed for **trading-related questions** and **real-time monitoring** and **alerts**, utilizing large language models (**LLM**) to enhance user interaction.

- Deployed projects in a **cloud environment** using **Docker** and **AWS services** (EC2, ECR, ECS), orchestrating APIs with Kubernetes for auto-scaling and load balancing;
- implemented **Test-Driven Development** (TDD) with unit, integration, end-to-end, smoke, and A/B testing, alongside a **CI/CD pipeline** integrated with SonarCloud, Typo, and CodeRabbit for high-quality code delivery.

Senior AI/Full Stack Developer | Orion Technolab - Teaneck, New Jersey   2021.05 – 2023.12

Technologies (JavaScript, Typescript, React, Next, Vue, Node.js, Express, PHP, Laravel, PostgreSQL, AWS, TDD, BDD, Restful API, Third party API, API rate limitation, Material UI, Scrum, Bitbucket)
- Migrated a **legacy distributed monolith** application to a **microservices architecture**, ensuring high-quality code to enhance fault tolerance, reliability, and scalability, resulting in improved **system performance** and maintainability.
- Designed AI-assisted modules for **financial compliance dashboards** that used ML pipelines to detect **irregular trade activity** and flag potential market misconduct.
- Integrated **LLM APIs** to extract semantic entities from voice and communication records for further feature engineering.
- Developed **alert-reduction** and **risk-classification logic** based on model confidence thresholds and statistical analysis, decreasing false alert volume by 28%.
- Collaborated with data scientists to build compliance explainability frameworks for **FINRA/SEC alignment** and **audit traceability**.
- Implemented a **notification system** and **plan management** features, ensuring seamless user stories and providing real-time communication to enhance user engagement and experience.
- Created responsive user interfaces and interactive components with **pixel perfect frontend page** using React, leveraging functional and class components, state management with hooks and Redux, and routing with React Router to deliver **high-performing** and **maintainable** web applications.
- Heavy SQL and Python for **data extraction**, **cohort analysis**, **churn signals**, and automated reporting.
- Conducted comprehensive **code reviews** for front-end and back-end components, ensuring adherence to **best practices** and coding standards while providing constructive feedback for optimization and enhanced performance.

Full Stack Developer | Freelancer   2018 – 2021

Technologies (JavaScript, Typescript, React, Next, Node.js, Express, MySQL, PostgreSQL, AWS, TDD, Restful API, Third party API, Material UI, Scrum, Git)
- Built scalable and high-performance web applications for **e-commerce**, **fintech**, and B2B/B2C SaaS platforms, leveraging **modern web technologies** to deliver exceptional user experiences and robust functionality.
- Developed and deployed **end-to-end ML pipelines** for data classification, sentiment analysis, and fraud detection.
- Integrated **NLP models** for text summarization and pattern recognition in financial documents and communications.
- Developed and maintained **REST APIs**, refactoring backend code for improved efficiency while keeping the platform updated with the latest features in **Node.js**, **Express**, **JavaScript**, **TypeScript**, and **React**.
- Created **micro-components** within a service-oriented architecture to ensure modularity, reusability, and maintainability, utilizing the **Next.js** framework to enhance **SEO** for single-page applications by 15% through server-side rendering.
- Collaborated effectively with team members and stakeholders to bridge the gap between **graphic design** and **technical implementation**, ensuring cohesive project outcomes.

AI AND ANALYTICS PROJECTS

- **Capital Markets Surveillance LLM:** Built domain-specific transformer fine-tuning workflow for trading communication data; achieved 30% gain in precision for risk detection.

- **Experimentation & Governance Framework:** Developed Split.io + GA4 model validation suite to evaluate AI policy changes against regulatory benchmarks.
- **Trading RAG Chatbot**: LLM + embeddings + vector DB; wallet-aware context, real-time alerts; improved support deflection and user satisfaction.
- **Growth Analytics Suite**: Cohorts, funnels, and LTV/CAC views in Mixpanel and Power BI; informed budget allocation and lifecycle triggers.

EDUCATION

Charotar University of Science & Technology

2019 - 2023

Bachelor's degree, Computer science

CERTIFICATIONS

- Microsoft Power BI Data Analyst Associate (PL-300)

- Alteryx Foundational Micro-Credential

- Alteryx Auto Insights Micro-Credential

- Machine Learning Fundamentals Micro-Credential

- IT Security: Defense against the digital dark arts - Google

- Google IT Support Specialization - Google

- System Administration and IT Infrastructure Services - Google

- Introduction to Social Media Marketing - Meta

- Operating Systems and You: Becoming a Power User - Google

- Introduction to Project Management - Coursera

- The Bits and Bytes of Computer Networking - Google