SHIVANSH SINGH

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SUMMARY OF EXPERIENCE AND ACHIEVEMENTS

- **Technical Leadership:** Over **10 years of experience** architecting high-performance data platforms and backend systems; served as **SME for Postgres and Terraform** migrations.
- **Cloud Infrastructure & Cost Optimization:** Spearheaded enterprise-level initiatives including an Aurora Serverless v1 to v2 migration and AWS EMR cluster optimization, resulting in a combined **$360,000+ in annual cost reductions**.
- **Data Engineering at Scale:** Architected ETL pipelines using **Spark and Airflow** that reduced data delivery time by **83% (from 1 hour to <10 minutes)** while managing high-volume updates for **1M+ records**.
- **Architectural Modernization:** Led the transition from **CloudFormation to Terraform** and upgraded core orchestration (Airflow v2.8.1), increasing developer velocity by **25%** and reducing maintenance overhead by **30%**.
- **Strategic Stakeholder Management:** Expert at facilitating technical roadmaps between Product Owners, Data analysts, Infrasec, and Senior Management to support major business milestones, including **50-state market expansion**.

EXPERIENCE

ROCKET COMPANIES (Rocket Innovation Studio & Rocket Homes) | Detroit, MI & Remote

Data Engineer / Software Engineer | Nov 2018 – Jul 2025

Infrastructure, IaC & Security

- **Cloud Cost Transformation:** Orchestrated the migration of Aurora PostgreSQL to Serverless v2 and optimized AWS EMR applications, delivering a combined **$360,000 in annual savings** and a **50% reduction in daily RDS costs**.
- **Enterprise IaC Migration:** Led an engineering team in migrating from **CloudFormation to Terraform**; redesigned regional configurations to enhance multi-region scalability and long-term maintainability in collaboration with Infrasec.
- **Modernization & Velocity:** Directed the upgrade of **Apache Airflow (v2.8.1)** and developed a local debugging environment, increasing developer velocity by **25%** and cutting deployment times to **<10 minutes** via **GitHub Actions**.
- **Security & Governance:** Enforced **Least Privilege IAM policies** across AWS services and implemented a comprehensive data governance model, ensuring security best practices and data trust during a **50-state expansion**.
- **Zero-Downtime Migration:** Orchestrated a secure **GitHub to GitHub EMU migration**, collaborating with Infrasec Engineers to author enterprise-level documentation while maintaining 100% platform uptime.

Data Engineering & Product Impact

- **High-Performance ETL:** Architected Spark-based pipelines that slashed data delivery latency from **1 hour to under 10 minutes**; redesigned architecture to reduce ongoing maintenance by **30%**.
- **Scalable Infrastructure:** Played a pivotal role in Rocket's national expansion by building robust data quality frameworks, including advanced logging, alerting, and monitoring systems.
- **Project Leadership:** Directed the end-to-end SDLC for the **Deeds and Assessments project**, integrating complex property sale history and resolving discrepancies to **remediate 3,000+ missing listings**.
- **Reliability Engineering:** Developed a **"Dry-Run" validation capability** for conformed reprocessing jobs, enabling risk-free execution for high-volume updates of **1M+ records**.
- **Operational Excellence:** Automated legacy school ratings update process, cutting down the turnaround time by **67%**.

- **Performance Engineering:** Engineered a custom **Image Trimmer Lambda (Python/PIL)** to replace legacy solutions, resulting in a more resilient and cost-effective pipeline.

Technical Leadership & Collaboration

- **SME & Problem Solver:** Acted as the primary **SME for Postgres and Terraform**, serving as the definitive resource for complex solution design and critical production root-cause analysis.
- **Mentorship:** Mentored junior engineers and new hires on **Python and AWS**-based data platforms, authoring technical onboarding materials to reduce recurring issues.
- **Stakeholder Management:** Facilitated strategic alignment between business partners, data analysts, and senior management throughout the software development lifecycle in an **Agile/Scrum** environment.

AMROCK (formerly Title Source) | Detroit, MI

Software Engineer - Machine Learning | Feb 2016 – Nov 2018

- **ML System Architecture:** Developed a RESTful Document Classification Service using Naive Bayes, achieving a **97% classification rate and 96% accuracy**.
- **Process Automation:** Built a text clustering utility (K-Means) to automate data cleaning, **saving 160 hours of manual labor** per project cycle.
- **Production Engineering:** Pioneered the first model-to-production pipeline by architecting Flask microservices, enabling the transition of data models from development to live environments for the first time in company history.

CHEMICAL SEMANTICS INC. | Gainesville, FL

Software Developer Intern | Sep 2015 – Dec 2015

- **Performance Tuning:** Analyzed solutions to remove redundancies and optimized performance of graphs, reducing resource loading times by **50%**.

EDUCATION
- **Master of Science in Computer Science** - University of Florida, Gainesville, FL [GPA: 3.8/4.0]
- **Bachelor of Technology in Computer Science** - JIIT, Noida, India [GPA: 8.5/10.0]

TECHNICAL SKILLS
- **Languages:** Python, Java, SQL, JavaScript, HTML/CSS
- **Data & Orchestration:** Apache Airflow, Kafka, Elasticsearch, ETL/ELT Pipelines
- **Cloud & DevOps:** AWS Tools(Lambda, RDS, EMR, S3, DynamoDB, Athena, Kinesis, SQS, SNS), Terraform, Docker, CI/CD, GitHub Actions
- **Tools & Frameworks:** Git, JIRA, Flask, NLTK, Pytest, Linux/Shell Scripting

HACKATHONS
- **AI Real Estate Report:** Architected a **tiered multi-agent AI system** integrating data from various official sources to generate comprehensive property insights for new home buyers.
- **Listing Narrative:** Engineered a multimodal utility using Computer Vision and TTS to transform static property images and descriptions into automated, immersive audio stories for real estate buyers.
- **Bluetooth NFC Location Tags:** Developed a self-guided tour system using Bluetooth and NFC tags, enabling automated, real-time historical data delivery to visitors' mobile devices, enabling the replacement of manual tours.

AWARDS AND LEADERSHIP
- **Engineering Culture Lead:** Organized team-building initiatives and led quarterly sync-ups to facilitate cross-teams knowledge sharing.
- **NASA AMES Space Settlement Design 2008:** 3rd Place Global Ranking.