

SANDEEP REDDY

Senior Software Engineer | Full Stack & Cloud Engineering | AI / Security / GRC

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PROFESSIONAL SUMMARY

Senior Software Engineer and named inventor on 2 IBM patent filings with 8+ years building production-grade Generative AI systems, enterprise security platforms, and DevSecOps pipelines at IBM. Technical lead and architect for IBM's TPRM platform, designed and scaled end-to-end from greenfield to production, serving IBM's global workforce. Track record of shipping high-impact, compliant systems across AI, cloud, and third-party risk from architecture decisions through production.

TECHNICAL SKILLS

Languages: Python, JavaScript, TypeScript, Java, Bash, SQL

AI / GenAI: LLMs (Open-Source & Proprietary), Multi-Agent Systems, RAG, Prompt Engineering, Agentic AI, watsonx Assistant, watsonx.ai, watsonx Orchestrate, Watson Discovery

Backend: FastAPI, Flask, REST APIs, Spring Boot, Node.js GraphQL, gRPC, Microservices, Event-Driven Architecture

Frontend: React, Next.js, Angular, TypeScript, HTML5, CSS3, Bootstrap

Cloud & DevOps: IBM Cloud, Docker, OpenShift, Kubernetes, Serverless, CI/CD (Jenkins, GitHub Actions), Infrastructure as Code, NGINX, Container Registry

Security: OWASP Top 10, DevSecOps, SAST, DAST, Software Bill of Materials (SBOM), Secrets Detection, Zero Trust, Vulnerability Management

GRC & Risk: Third-Party Risk Management (TPRM), GRC (ProcessUnity), Vendor Risk Assessment, SOX, PCI-DSS, FFIEC, SSO/SAML, Secure SDLC

Databases: NoSQL (Cloudbant, MongoDB), SQL (PostgreSQL, MySQL), Object Storage (S3/B2), Redis / In-Memory Caching

Tools & Testing: SonarQube, JUnit, Postman, Swagger/OpenAPI, Maven, Gradle, Git, Slack SDK, ZenHub, Monday, Mend, Twistlock

PROFESSIONAL EXPERIENCE

Senior Software Engineer — IBM

May 2021 – Present

Third-Party Risk Management (TPRM) | Durham, NC

- Engineered a production GenAI conversational assistant (watsonx Orchestrate, FastAPI) deployed on Slack and web for IBM's global TPRM operations, eliminating 100% of routine vendor risk support tickets and reducing response time from hours to seconds with 24/7 automated risk alerts.
- Architected a fully autonomous multi-agent AI system (watsonx Orchestrate) with specialized agents for discovery, evaluation, and reporting auto-ingesting vendor security posture from public trust centers and artifacts; achieved 100% end-to-end process automation, eliminated all manual supplier engagement, and compressed assessment cycle time by 7+ days.
- Designed a dual-LLM validation engine (watsonx.ai) to score supplier service descriptions in real time — improving submission quality 77%, cutting manual review effort 70%, and achieving 94% AI accuracy across thousands of assessments validated via double-blind testing.
- Engineered an end-to-end workflow automation platform (ProcessUnity, Monday.com, Mend) for SBOM assessment orchestration slashing setup time 90%+ (30+ min → 2–3 min) and eliminating manual data entry from the vendor risk pipeline.
- Built a software supply chain security scanning pipeline (Mend/WhiteSource) — achieving 100% SBOM dependency scan coverage for critical/high-severity CVEs across all supplier software, replacing manual research with systematic automated detection.
- Designed and deployed a multi-stage DevSecOps CI/CD pipeline (Jenkins, GitHub Actions) with SAST, container scanning, dependency analysis, and secrets detection cutting deployment time from hours to minutes and increasing release cadence 4x (monthly → weekly).
- Architected and administered IBM Cloud infrastructure for the TPRM platform provisioning Code Engine (serverless), Container Registry, Cloud Object Storage, Secrets Manager, and IBM Logs; configured IAM policies and AccessHub for team onboarding and CBN elevated-role governance; deployed watsonx, Watson Discovery, Watson Studio, and CloudbantDB at enterprise scale.

- Enforced OWASP Top 10 secure coding standards across all TPRM services; led vulnerability assessments using IBM App Scan and Contrast Security, remediating XSS, SQL injection, and injection flaws across production; administered ProcessUnity GRC platform for enterprise-wide governance, risk, and compliance workflow management.
- Engineered SSO/SAML identity federation and directory integration (IBM W3id, Bluepages) unifying authentication and enabling secure single sign-on across 5+ internal tools and third-party SaaS applications, eliminating siloed identity management.
- Architected automated integrations for SIG Questionnaire and Black Kite risk intelligence via custom REST APIs and ProcessUnity templates enabling real-time external risk signal ingestion and driving the GRC platform roadmap for SOX, PCI-DSS, and FFIEC compliance.
- Built a unified data aggregation layer to consolidate risk datasets across IBM Procurement, Risk Management, Security, and Business Units delivering a single source of truth for enterprise risk reporting and audit-ready compliance pipelines.
- Led architecture and system design for 10+ distributed TPRM services across IBM's global enterprise; drove engineering standards, conducted code and design reviews, mentored junior engineers, and partnered with Security, Legal, and Compliance leadership — delivering reliable, audit-ready systems at scale.

Software Engineer — IBM (Contractor)

Apr 2018 – May 2021

Agile Risk Management → Third-Party Risk Management | Durham, NC | Client: IBM

- Built and maintained the Agile Risk Management (ARM) platform at IBM, a deviation risk tracking system enabling project teams to identify, assess, and escalate schedule and delivery risks; engineered full-stack features (Java Spring Boot, Angular, REST APIs) with end-to-end ownership across multiple release cycles.
- Transitioned to IBM's Third-Party Risk Management (TPRM) program — contributed to the foundational buildout of ProcessUnity GRC workflows, SSO/SAML identity integrations, and microservice-based vendor assessment pipelines that later scaled into the enterprise TPRM platform.
- Designed and implemented SSO/SAML federated identity (IBM Liberty + ProcessUnity SaaS) and integrated SendGrid for enterprise transactional email delivery — establishing secure, scalable identity and notification infrastructure for the TPRM program.
- Designed NoSQL (Cloudant) data integration workflows and RESTful/SOAP microservices for vendor assessment pipelines; authored full Swagger/OpenAPI documentation and Postman test suites ensuring API reliability across all endpoints.
- Containerized microservices with Docker, deployed on IBM Hybrid Cloud (OpenShift), configured NGINX for load balancing, and built Jenkins CI/CD pipelines — enabling fully automated, repeatable build and deployment workflows.
- Developed reusable Angular component libraries and applied Java 8 (Streams, Lambda) and Python (Pandas, Beautiful Soup) for backend data processing, automated vendor data enrichment, and scalable API integrations.
- Led end-to-end system testing, UAT coordination, and production incident resolution — maintaining platform reliability, uptime, and enforcing security and compliance standards across all release cycles.

PATENTS

• Detection and Management of Anomalies in Assessment Data

U.S. Patent Application No. 19/008667 • IBM • Filed Jan 2025(Pending)

Covers automated anomaly detection and management within third-party security assessment data pipelines to improve data integrity and risk accuracy.

• System and Method for Automated Verification of Supplier Risk Questionnaire Data Using Multi-Model Language Understanding

IBM Invention Disclosure P202501766 • Filed May 2025 • Review: Completed

Covers multi-model LLM-based automated verification of supplier risk questionnaire submissions — directly tied to the dual-LLM validation engine built for the TPRM platform.

EDUCATION

Master of Science in Computer Science

Dec 2017

Texas A&M University, TX, USA

Bachelor of Engineering in Computer Science

Apr 2016

SRM University, India