

# Rajat Roy

41 Broadway, Peterborough, PE1 1SQ, United Kingdom | roy777rajat@gmail.com | (+44) 7776827123

## Profile

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Dynamic Data and AI Engineer with 18 years of experience, dedicated to delivering transformative data solutions that enhance operational efficiency. Expertise in designing robust ETL pipelines and managing data migration projects, leveraging AWS technologies to optimize workflows and elevate data quality. Proficient in integrating Generative AI into applications, demonstrating a strong aptitude for crafting resilient, cloud-native systems. Passionate about advancing data-driven strategies within the insurance domain, ensuring high-quality outcomes in every project. Committed to fostering innovation and operational excellence through effective data governance and management practices.

## Technical Skills

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**AWS Cloud Engineering & Integration:** S3, EC2, Athena, Cloud Front, API Gateway, AWS Glue, Event Bridge & Step Function, VPC, Security Group, IAM

**Data Engineering:** Python, Pandas, Apache PySpark, Apache PyFlink, Oracle Procedure/Package.

**Event Driven :** Kafka, AWS Kinesis, Kinesis Analytics, AWS Lambda

**Database & Graph:** Oracle, MySQL and Neo4j

**Scripting:** Oracle PL/SQL, Shell Scripting

**AI & AI Orchestration:** AWS Bedrock Model, OpenAI, N8N, Redis

**Cloud Metric and Performance KPI:** Dynatrace & Grafana

**Application Development:** Java, Spring, Spring MVC, Javascript, HTML, CSS

## Professional Experience

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**Associate Consultant, Diligenta Ltd (Part of Tata Consultancy Services), Peterborough, UK**

March 2022 — Present

- Act as Sr. Data Engineer with hands-on execution with handling of 10+ junior resources in the field of Insurance transformation data migration.
- Designed and developed a comprehensive insurance data lake in AWS S3, optimizing data mining and validation workflows using custom tools and scripting languages. Used S3, Glue crawler, Glue job, Glue studio, python and pyspark.
- Engineered an ETL pipeline in AWS Glue with Apache Pyspark, achieving 35% faster transactions for a near real-time insurance payment system.
- Implemented alert and monitoring frameworks in AWS using Lambda, EventBridge, and SNS for enhanced operational visibility.
- Conducted SQL-based static monitoring of daily operational metrics to ensure data integrity and accuracy.
- Managed data governance processes, including data salting, duplication, windowing, and lineage visualization to maintain high-quality datasets.
- Integrate with Dynatrace Platform with EC2 cluster for observability of functions like Restful API call, API Timing, Cloud metrics and Application Workplace Experience.

**Associate Consultant, Tata Consultancy Services, Kolkata, India**

January 2020 — February 2022

- Engineered seamless AWS Cloud migration for TCS in-house Insurance PAS system, ensuring efficient cloud lift-and-shift.
- Scaled PAS system with robust cloud-native architecture to enhance global vendor offerings.
- Developed low-latency, high-availability micro-services in AWS, optimizing performance through API Gateway, Lambda, and diverse databases.
- Refactored monolithic API into micro-services, enabling AI integration and enhancing responsiveness.
- Designed and implemented AI-driven Insurance claim operations using AWS Textract and Bedrock models, streamlining processes significantly.
- Created a chat-bot powered by Neo4j Graph and AWS Bedrock, achieving 80% friction-less on-boarding for legacy systems.

**Assistant Consultant, Tata Consultancy Services, Cape Town, South Africa**

February 2016 — February 2020

- Modernized core systems by architecting and developing high-availability APIs for seamless integration with digital omni-channel platforms.
- Designed and built microservices using Spring Boot MVC architecture, achieving 80% performance improvement through refactoring monolithic RESTful services into modular components.
- Developed a YAML-based API orchestration layer to manage complex business workflows across BaNCS systems.
- Conducted performance testing with Groovy scripts in JMeter, utilizing Dynatrace to capture key metrics and identify bottlenecks.
- Fostered cross-functional collaboration to align API solutions with business needs, enhancing the overall digital transformation strategy.

## IT Analyst, Tata Consultancy Services, Dubai,UAE

January 2014 — January 2016

- Acted as an Application Developer & Production Support Analyst within TCS BaNCS Insurance transformation project.
- Designed and implemented real-time integrations between TCS BaNCS PAS and Oracle Financials to optimize financial data handling.
- Developed robust Oracle PL/SQL batch processes and dashboards, ensuring data accuracy and anomaly tracking.
- Managed defect lifecycle using HP Quality Center, resolving production issues through effective data patches.
- Handled customer escalations, minimizing business disruptions while synchronizing large volumes of data with Customer 360 data lake.

## System Engineer, Tata Consultancy Services, Kolkata,India

November 2010 — January 2014

- Designed and implemented robust APIs for enhanced system integration.
- Developed and managed databases with Core Java, Spring, JDBC, and Oracle PLSQL/SQL.
- Collaborated with cross-functional teams to optimize application performance and drive project success.
- Executed scalable system design and architecture, ensuring adaptability for future growth.
- Led seamless integration efforts, maintaining data flow and functionality across platforms.

## Technical Analyst -CRM, Cognizant Technology Solution, Kolkata,India

March 2010 — November 2010

- Assist in the design and development of Pega applications, focusing on creating process flows, user interfaces, and business rules.
- Participate in unit testing, debugging, and resolving issues to ensure the quality and performance of Pega applications.

## Bennet Coleman & Co Ltd, System Engineer, Kolkata,India

March 2007 — February 2010

- Developed and optimized MIS tool using PHP, HTML, JavaScript, AJAX, CSS, XML, and MySQL Server.
- Collaborated with Press, Pre Press, and product management to ensure application design meets customer requirements.
- Designed user interfaces that improve user experience based on client feedback and industry standards.

## Education

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### B.Tech

August 2001 — August 2005

## Certification

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### AWS Certified Solutions Architect – Associate

[https://www.credly.com/badges/8817f0f3-7984-47d0-9e8a-1c3f5f861860/linked\\_in\\_profile](https://www.credly.com/badges/8817f0f3-7984-47d0-9e8a-1c3f5f861860/linked_in_profile)

### AWS Certified Cloud Practitioner

[https://www.credly.com/badges/097a83c4-0505-4960-80fb-47b6d2b40a5a/linked\\_in\\_profile](https://www.credly.com/badges/097a83c4-0505-4960-80fb-47b6d2b40a5a/linked_in_profile)

### Databricks Certified Data Engineer Associate

[https://api.accreditable.com/v1/auth/invite?code=1c6cac80af44331d3422&credential\\_id=df2a4edd-c36a-42eb-90db-1a1bb78b2e15&url=https%3A%2F%2Fmedium.com%2F%2Fuk.rajatroy%2Ftransforming-legacy-insurance-with-neo4j-redis-and-ai-robust-scalable-low-latency-smart-crawling-legacy-portal](https://api.accreditable.com/v1/auth/invite?code=1c6cac80af44331d3422&credential_id=df2a4edd-c36a-42eb-90db-1a1bb78b2e15&url=https%3A%2F%2Fmedium.com%2F%2Fuk.rajatroy%2Ftransforming-legacy-insurance-with-neo4j-redis-and-ai-robust-scalable-low-latency-smart-crawling-legacy-portal)

### Academy Accreditation - AWS Databricks Platform Architect

<https://credentials.databricks.com/0703b9e4-b44e-4af5-85ac-f15e4295c0c6>

### Databricks Certified Data Engineer Professional

<https://www.udemy.com/certificate/UC-dd9a1350-6146-4e3e-9df1-515821b7704b/>

### Neo4j

<https://graphacademy.neo4j.com/c/0917a891-71c2-497b-b3ef-ce6295c84be0/>

### Academy Accreditation - Generative AI Fundamentals

<https://credentials.databricks.com/1fe3bee3-a8fe-4b8e-afb0-3f7ba74b5d55>

## Articles

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### The AI-Powered Defect Workflow State Machine: MCP Meets n8n, Render, and WhatsApp/Slack

<https://medium.com/@uk.rajatroy/the-ai-powered-defect-workflow-state-machine-mcp-meets-n8n-render-and-whatsapp-slack-3ad8c936b944>

### Transforming Legacy Insurance with Neo4J,Redis and AI — robust, scalable, low latency — Smart Crawling Legacy Portal

<https://medium.com/@uk.rajatroy/transforming-legacy-insurance-with-neo4j-redis-and-ai-robust-scalable-low-latency-smart-2b72907fa23c>

### Automating Insurance Claim Initiation Using AWS and Generative AI

<https://medium.com/@uk.rajatroy/automating-insurance-claim-initiation-using-aws-and-generative-ai-79456ac2d16e>

## From Spring Boot Insurance App to Full Cloud Observability: JMeter, ASG + ALB, and Dynatrace

<https://medium.com/@uk.rajatroy/from-spring-boot-insurance-app-to-full-cloud-observability-jmeter-asg-alb-and-dynatrace-906c244305c2>

## PySpark Hybrid Streaming & Batch Job Pipeline — World Cricket Match Live Streaming

<https://medium.com/@uk.rajatroy/pyspark-hybrid-streaming-batch-job-pipeline-world-cricket-match-live-streaming-fbfe854cfec9>

### Additional Information

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**Links:** [LinkedIn](#) , [GIT Repo](#) [Medium](#) [Redis Builder](#) [AWS Builder](#)