FREDRICK BARCLAY

SENIOR AI ENGINEER

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PROFESSIONAL SUMMARY

Senior AI Engineer with 9+ years of software engineering and data engineering experience across identity security, infrastructure observability, and cloud analytics. Develops scalable backend services, access governance workflows, and data integration pipelines, with applied machine learning for identity recommendations and anomaly detection. Experienced in enterprise APIs, cloud platforms, automated testing, and the delivery of reliable production systems.

TECHNICAL SKILLS

Programming & Query Languages: Python, Java, Go, C#, TypeScript, JavaScript, SQL, T-SQL, SWQL, Bash
Applied ML & Evaluation: Machine Learning, scikit-learn, NumPy, AI-Assisted Role Recommendations, Identity Analytics, Anomaly Detection, Statistical Anomaly Scoring, Role Recommendation Review, Model Output Validation
Backend & System Integrations: Spring Boot, .NET Framework, ASP.NET Web API, FastAPI, REST APIs, SCIM, SWIS, Microservices, Redis, Apache Kafka, SNMP, WMI
Frontend & Data Visualization: Angular, TypeScript, JavaScript, Administration Dashboards, Time-Series Visualization
Data Engineering & Databases: PostgreSQL, MySQL, Microsoft SQL Server, Amazon Redshift, Amazon S3, AWS Glue, PySpark, pandas, SQLAlchemy, Data Warehousing, ETL
Cloud & DevOps: AWS, Azure, Amazon EKS, Docker, Kubernetes, Terraform, Jenkins, Git, CI/CD, Amazon CloudWatch, OpenTelemetry, Grafana, boto3
Software Testing & Quality Assurance: Unit Testing, Integration Testing, Data Quality Validation

PROFESSIONAL EXPERIENCE

SailPoint | Remote | Apr 2023 - Present

Senior Software Engineer

- Led backend development for the **Identity Security Cloud Access Governance Platform**, building scalable **Java/Spring Boot** microservices and **REST APIs** to automate employee identity provisioning, role-based access management, and permission reviews across enterprise applications.
- Developed **Go-based identity integration services** connecting **Workday, Active Directory, and Salesforce** through **SCIM and REST APIs**, implementing identity correlation, attribute mapping, and incremental synchronization to maintain consistent account and entitlement records across connected systems; reduced manual account reconciliation by 23% across 36,000 identity records.
- Designed **RBAC policy evaluation and access approval workflows** using **Java, Spring Boot, and PostgreSQL**, implementing role assignment rules, segregation-of-duties checks, multi-stage approvals, and automated access revocation for employee onboarding, transfers, and termination events.
- Architected **event-driven processing pipelines** with **Apache Kafka, Redis, and AWS**, implementing asynchronous provisioning jobs, idempotent event handlers, retry policies, and dead-letter queues to improve fault tolerance and prevent duplicate permission changes during high-volume identity updates; reduced duplicate permission updates by 29% across 74,000 monitored provisioning events.
- Built **Python-based identity analytics and machine learning pipelines** using **Pandas, scikit-learn, and SQL** to analyze entitlement relationships, generate AI-assisted role recommendations, and identify unusual access patterns, integrating recommendation results into existing access governance workflows for administrator review.
- Developed **Angular and TypeScript** administration interfaces backed by secure **REST APIs**, implementing identity search, access certification dashboards, entitlement filtering, and recommendation review screens that allowed security administrators to investigate permissions and approve or reject access changes.
- Improved production reliability and deployment workflows using **Docker, Kubernetes, AWS EKS, Terraform, and Jenkins**, introducing automated unit and integration tests, deployment validation, and **OpenTelemetry/Grafana** monitoring to detect provisioning failures, investigate API latency, and support production troubleshooting.

SolarWinds | Remote | Apr 2020 - Mar 2023

Software Engineer

- Led the development of enterprise infrastructure monitoring features within the SolarWinds Orion Platform, later expanded into the SolarWinds Platform and Hybrid Cloud Observability, focusing on network performance, server health, real-time telemetry collection, and centralized alert management across on-premises and cloud environments.
- Designed and developed C#/.NET backend services for automated network discovery, scheduled SNMP and WMI polling, device health monitoring, and metric processing, implementing asynchronous execution, configurable retry logic, and fault handling to improve data collection reliability across large-scale enterprise infrastructure; improved scheduled polling success to 98.7% across 5,200 devices.

- Developed and optimized Microsoft SQL Server database operations using T-SQL, stored procedures, indexing, and query execution plans, while building REST APIs and SolarWinds Information Service (SWIS) integrations with SWQL to retrieve historical performance metrics, device relationships, and alert records for monitoring applications; reduced historical metric query latency by 27% in representative monitoring workloads.
- Built interactive monitoring dashboards using Angular, TypeScript, and REST APIs, implementing configurable performance widgets, time-series charts, device-level filtering, and alert investigation views that allowed IT administrators to analyze CPU utilization, memory consumption, network latency, and infrastructure availability.
- Extended hybrid cloud monitoring capabilities through AWS and Azure API integrations, developing Python-based automation for cloud resource discovery, telemetry normalization, and monitoring data validation while connecting cloud infrastructure metrics with existing SolarWinds Platform entities and reporting workflows.
- Developed Python-based anomaly detection and alert analysis components using pandas, NumPy, and scikit-learn to identify abnormal infrastructure performance patterns, integrated statistical anomaly scores into monitoring workflows, and strengthened release quality through automated unit tests, integration tests, code reviews, and CI/CD pipelines.

Rackspace Technology | San Antonio, TX | Jun 2017 - Mar 2020
Data Engineer

- Contributed to the **Cloud Operations Data Integration and Reporting Pipelines** project at Rackspace, developing **Python-based ETL pipelines** to consolidate cloud infrastructure metrics, customer account records, and application logs into centralized datasets for operational reporting and analytics.
- Developed **incremental data ingestion workflows** using **Python, pandas, SQLAlchemy, and REST APIs**, implementing timestamp-based extraction, schema normalization, duplicate detection, and batch processing to reduce redundant database queries and improve data consistency; reduced duplicate ingestion records by 38% across 84 recurring loads.
- Built and maintained **cloud-based data processing workflows** using **Amazon S3, AWS Glue, and Amazon Redshift**, supporting raw data ingestion, partitioned storage, PySpark transformations, and SQL-based data warehouse loading for downstream analytics and reporting.
- Implemented **data quality validation and pipeline monitoring** using **PostgreSQL, Python, Jenkins, and Amazon CloudWatch**, developing source-to-target reconciliation checks, automated tests, error logging, and failure notifications to identify incomplete records and troubleshoot scheduled ETL jobs; shortened failed-job investigation time by 31% over 160 monitored pipeline runs.

SELECTED PROJECTS

SailPoint Identity Security Cloud — Access Governance | 2023-Present
Task & inputs: Employee identities, access entitlements, application accounts, provisioning events, and approval records.
Method: Implemented SCIM/REST integrations, RBAC and access review workflows, and ML-assisted role recommendation review.
Deliverables: Identity synchronization services, approval workflows, entitlement review screens, and administrator-facing insights.
Technologies & skills: Java, Spring Boot, Go, Python, Angular, SCIM, PostgreSQL, Kafka, scikit-learn, AWS.

SolarWinds Hybrid Cloud Observability — Infrastructure Telemetry | 2022-2023
Task & inputs: Network and server metrics, SNMP/WMI observations, cloud discovery results, and alert history.
Method: Developed polling and metric-processing services, SWIS/SWQL queries, cloud integrations, and anomaly scoring.
Deliverables: Performance dashboards, normalized infrastructure metrics, alert analysis, and regression checks.
Technologies & skills: C#, .NET, SQL Server, SWIS/SWQL, Angular, Python, scikit-learn, AWS, Azure.

Rackspace Cloud Monitoring — Operations Data Pipelines | 2017-2020
Task & inputs: Cloud resource telemetry, customer account records, application logs, and operational reporting feeds.
Method: Implemented incremental ingestion, PySpark transformations, SQL reconciliation, and monitored warehouse loads.
Deliverables: Consolidated operational datasets, reporting tables, scheduled validation checks, and ETL alerts.
Technologies & skills: Python, pandas, SQLAlchemy, PySpark, AWS Glue, Amazon S3, Redshift, PostgreSQL, Jenkins.

EDUCATION

The University of Texas at Austin | Aug 2013 - May 2017
Bachelor of Science in Computer Science