

ABDALLAH ABD-EL-FATTAH

Senior Software Engineer | Full-Stack & Data Engineering | System Design

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PROFESSIONAL SUMMARY

Software Engineer with 8+ years building scalable systems across full-stack web, mobile, and data engineering. Track record of end-to-end ownership—from architecture through deployment—with measurable impact: 96% cost reduction through platform optimization, 75% faster development cycles via reusable frameworks, and zero-downtime migrations of production data pipelines.

Experienced in designing systems that enable team autonomy and eliminate cross-team dependencies. Strong background in both individual contributor and engineering management roles, with expertise in stakeholder management, technical research, and building frameworks that lower barriers for team contributions.

TECHNICAL SKILLS

Languages: Java 17, Python, Kotlin, JavaScript, TypeScript, SQL, Rego (OPA), HCL (Terraform)

Backend & Data: Spring Boot, Django, REST APIs, Snowflake, Snowpark, DynamoDB, PostgreSQL

Frontend: React, Context API, MUI (Material-UI), Looker (Embedded Analytics), Angular

Mobile: Android (Kotlin/Java), React Native, Cordova

Infrastructure: Terraform, AWS, Datadog, Docker, CI/CD, GitHub Actions, Firebase Distribution

Architecture: Clean Architecture, Micro-Frontend, Event-Driven, Single-Table NoSQL Design

Patterns: Factory, Facade, Repository, Template Method, Strategy, Provider, Mapper

Testing: JUnit, pytest, Testcontainers, REST Assured, Unit/Integration/E2E

Security: RBAC, Open Policy Agent (OPA), JWT, Fail-Safe Authorization Design

WORK EXPERIENCE

Senior Full Stack Engineer | c3s Software (Confidential Client)

Aug 2024 - Present | Remote

Full-stack web and data engineering across React frontend, Spring Boot/Python backend, and Snowflake data platform. End-to-end ownership from architecture through deployment.

- Delivered 6 major initiatives spanning frontend architecture, data engineering, infrastructure, monitoring, and authorization systems
- Technologies: React, Java 17, Spring Boot, Python, Snowflake, DynamoDB, Terraform, Datadog, OPA

Engineering Manager | Dubizzle Egypt

Jun 2022 - Aug 2023 | Remote

Reported to country manager. Owned product roadmaps impacting Egypt, Lebanon, Oman, and Bahrain markets. Managed cross-departmental stakeholder relationships.

- Led engineering delivery for Pro-Agency Portal, Telesales Tool, and Drop-offs System
- Established communication lines with Sector Labs engineering leadership for cross-market alignment
- Contributed to codebases as full-stack engineer (Django/React)

React Native Engineer | Dubizzle Egypt

Jan 2022 - Jun 2022 | Remote

Squad lead for Real-estate verticals epic across web and mobile platforms.

- Led migration of user base from native Android to cross-platform React Native app
- Collaborated with sister company Sector Labs on shared codebases

- Coached junior engineers; conducted candidate interviews

Senior Android Engineer | Dubizzle Egypt

Oct 2020 - Dec 2021 | Cairo

Android development for OLX Arabia app (10M+ installs, 260M MAU globally).

- Delivered features serving customer and business needs including Pay-and-Ship integration
- Designed cross-platform analytics module adopted across all disciplines
- Led release planning and cross-team coordination; coached juniors via pair programming

Software Engineer II | Amazon

Jun 2020 - Aug 2020 | Remote, Spain

Full-stack engineer in Amazon Business organization.

- Worked on large-scale international projects in Agile environment
- Participated in complete software lifecycle

Senior Android Engineer | The D. GmbH

May 2018 - May 2020 | Cairo

Android development for consumer apps including CUJU (football training) and white-label event platforms.

- Designed and built advanced Android applications
- Collaborated with cross-functional international team
- Recruited and trained junior team members

Solutions Engineer | Vision Valley

Jan 2016 - Apr 2018 | Cairo

Single solutions engineer creating apps across Android, cross-platform, and backend.

- Built PoCs and presented to management for approval
- Partnered with product management on roadmaps
- Recruited new team members

PROJECTS

c3s Software / Confidential Client (2024-2025)

MUI Version Migration Facade Architecture Feb 2025 | React, JavaScript, Context API, Factory Pattern, Facade Pattern, Micro-Frontend

Business Problem: 5+ micro-apps needed different MUI versions, but shared reporting libraries forced version coupling. Frontend team blocked by Reporting team for any MUI migration.

Solution: Designed version-aware Facade architecture with MuiVersionProvider context propagating version through component tree. Built createVersionedComponent factory dynamically selecting correct implementation at runtime.

Technical Implementation:

- Unified reporting-components-library and reporting-dashboards-library as single source of truth
- Mirrored directory structure (mui-v4/, mui-v5/, mui-v6/) ensuring feature parity
- Graceful degradation with console warnings for invalid configurations
- React.memo optimization preventing unnecessary re-renders

Business Impact:

- 5+ micro-apps unified under single library system
- 20 dashboards work across any MUI version
- Eliminated duplicate implementations and cross-team blocking
- Authored ADR gaining approval from manager and frontend lead

Snowflake ETL Testing & Integration Platform Apr 2025 | Python, Snowflake, Pandas, pytest, Git Integration, Template Method Pattern

Business Problem: Vendor integration took 2+ weeks per vendor due to no local testing capability, duplicate validation logic, and risk of production data corruption during testing.

Solution: Built reusable test harness with CSV-based testing, abstract validation framework, and git-connected Snowflake integration enabling code reuse across stored procedures.

Technical Implementation:

- CSV-based test harness with pytest fixtures and automatic cleanup
- Abstract Rule class with Template Method pattern (IsRequiredRule, IsNumberRule, IsDateRule)
- Vectorized pandas operations (359x faster than row-by-row)
- Fixture Factory pattern for consistent test data generation
- Self-researched git-connected Snowflake approach

Business Impact:

- 75% reduction in integration time: 2+ weeks to 2-3 days per vendor
- 5+ vendors integrated using framework
- Zero production impact through local testing
- Serves ops, finance, and product teams with unified shipment visibility

Snowflake Terraform Provider Migration May-Aug 2025 | Terraform, Snowflake, Infrastructure as Code, State Management

Business Problem: 13 repositories running pre-stable Snowflake Terraform provider versions, accumulating 2 years of technical debt. Direct upgrades would fail due to breaking changes.

Solution: Identified version breakpoints (0.37 → 0.73 → 0.86 → 0.99 → 0.100.0 → 1.0.0 → 2.4.0) and executed phased migration with state management strategy.

Technical Implementation:

- Namespace migration from Snowflake-Labs/snowflake to snowflakedb/snowflake
- Resource type evolution (snowflake_procedure → snowflake_procedure_python)
- Attribute schema updates across all resources
- Guided DevOps through state file modifications

Business Impact:

- 13 repositories migrated to stable release
- Zero downtime with 10+ GB/day pipeline throughput
- 2-year technical debt eliminated
- Unlocked external API integration and in-procedure alerting

Snowflake-Datadog Monitoring Integration Jun-Jul 2025 | Snowflake, Datadog, Terraform, Monitoring

Business Problem: Default Datadog integration cost \$5/day. Legacy monitoring (custom logs + tasks + Looker alerts) cost \$1/day and required manual daily review.

Solution: Analyzed default integration queries, disabled unnecessary features, created cost-optimized warehouse with minimal privilege model.

Technical Implementation:

- Dedicated DATADOG_WH (X-Small, 30-sec auto-suspend, 120-sec statement timeout)
- Minimal database roles (USAGE_VIEWER, OBJECT_VIEWER, GOVERNANCE_VIEWER, etc.)
- RSA key-based service user authentication
- Selective feature enablement for actual use cases

Business Impact:

- 96% cost reduction from default: \$5/day → \$0.20/day
- 80% cost reduction from legacy: \$1/day → \$0.20/day
- 24x faster alerting: 2-hour vs next-day notification
- Eliminated manual daily report review

Looker Dashboard Event Interception System Sep 2025 | React, Event-Driven Architecture, Factory Pattern, Provider Pattern

Business Problem: Users lost dashboard context and filters when drilling down to detailed analytics. Complex navigation patterns reduced analytics engagement.

Solution: Built event interception system displaying detail dashboards in application-controlled modals while preserving parent context.

Technical Implementation:

- createInterceptableEventHandler factory for any dashboard/event combination
- Centralized payload management with Provider pattern
- Pure function architecture enabling comprehensive testing
- URL parameter control for event interception

Business Impact:

- Zero navigation disruption for drill-down operations
- Automatic filter inheritance from parent dashboard
- 200+ lines of duplicate code eliminated
- Single configuration point for new dashboard types

HubTrack Profiles API & OPA Authorization Sep-Dec 2025 | Java 17, Spring Boot 3.5.7, DynamoDB, OPA, Rego, Testcontainers, REST Assured

Business Problem: Legacy authorization tool lacked enterprise security practices. No gateway-level authorization for incoming requests.

Solution: Built RBAC API with DynamoDB single-table design integrated with OPA for gateway-level authorization across entire organization.

Technical Implementation:

- Single-table DynamoDB schema (PROFILE#{oktaId}, ROLE#{name}, RESOURCE_CATEGORY#{name})
- O(1) lookups with <50ms latency (2 queries at ~15-20ms each)
- Strong consistency for authorization queries (no eventual consistency windows)
- Fail-safe Rego policy: default deny, explicit allow
- JWT token extraction from claims
- Repository pattern with swappable implementations
- E2E self-cleaning test suite with Testcontainers

Business Impact:

- Gateway-level authorization for entire organization
- <50ms authorization latency meeting p95 target
- ~\$0.30/month DynamoDB cost
- Self-service role management without code changes
- 6 documentation files for team onboarding

Dubizzle Egypt (2020-2024)

Pro-Agency Portal Jun 2022 - Aug 2023 | Django, Python, React, TypeScript

Business Problem: Large agencies with 1,000+ ad inventories had no visibility on aggregated performance, no way to distribute work among agents, and no leads tracking.

Solution: Built owner/agent model with distributed quotas, agency onboarding for bulk migration, and self-service agent invitation system.

Technical Implementation:

- Django/Python backend with React/TypeScript frontend
- Bulk migration system for existing users and ads
- Distributed quota management per agent
- Per-agent leads tracking and performance visibility

Business Impact:

- 85% adoption rate in first 3 months
- Served Egypt and Lebanon markets
- Reduced operations and customer support manual effort
- Improved leads tracking and ads performance visibility

Telesales Automation Tool Jun 2022 - Aug 2023 | Django, Python, Payment Gateway Integration

Business Problem: After payment, users had to call back agents with reference numbers to apply packages—taking 1 hour to 1 full day.

Solution: Integrated payment gateway webhooks to trigger automatic package application with zero human interaction.

Business Impact:

- Package application time: 1 hour-1 day → instant
- Zero human interaction post-code generation
- Faster payment cycles improving conversion

Drop-offs Lead System Jun 2022 - Aug 2023 | Django, Python, External Dialer Integration

Business Problem: Telesales relied on hourly BI reports to identify payment drop-offs. By contact time, users were no longer engaged.

Solution: Built real-time lead push system to external dialer every 5-15 minutes with configurable timing.

Business Impact:

- Contact time: 1 hour → 5-15 minutes (4-12x faster)
- Reached users while still engaged with platform
- Eliminated manual BI report extraction

OLX Arabia Android App Oct 2020 - Dec 2021 | Android, Kotlin, Analytics, Firebase Distribution, CI/CD

Business Problem: Fragmented analytics across platforms. Manual 20-minute release process. 4-5 minute analytics event testing.

Solution: Designed cross-platform analytics module. Automated CI/CD to Firebase. Built logging layer for instant event validation.

Technical Implementation:

- Analytics module design presented to and approved by head of engineering
- Firebase Distribution automation with zero human interaction
- Logging layer with mobile notifications and console logs

Business Impact:

- 10M+ Play Store installs, 260M MAU globally
- Release time: 20 min → 2 min (10x faster)
- Analytics testing: 4-5 min → instant
- Delivered Pay-and-Ship within 1 week of joining

The D. GmbH (2018-2020)

CUJU Android App May 2018 - May 2020 | Android, Kotlin, Clean Architecture, XMPP, Multi-module, JUnit

Business Problem: Legacy codebase with large APK, frequent crashes (57% crash-free), and architecture preventing feature development.

Solution: Complete architecture rewrite using Clean Architecture with multi-module design. Reimplemented chat with XMPP.

Technical Implementation:

- Separate modules: UseCase, Data, Remote, Local, UI
- XMPP protocol for real-time messaging
- API level migration from 16 to 21 with user base analysis

Business Impact:

- 50%+ APK size reduction while adding features
- Crash-free sessions: 57% → 90% in 6 months
- 100% unit test coverage (non-UI layers)

Events White Label Apps (BYE, The Good Summit) May 2018 - May 2020 | Android, Kotlin, Clean Architecture, Multi-module

Business Problem: Each event required custom app, but building separate apps was time-consuming and maintenance-heavy.

Solution: Built white-label platform with configuration-driven branding and Clean Architecture.

Business Impact:

- Deployed across multiple events: BYF, The Good Summit
- 100% unit test coverage (non-UI layers)
- Single codebase reduced maintenance overhead

Vision Valley (2016-2018)

Letuno Platform Oct 2016 - Jan 2017 | Android, MVP Architecture, REST APIs, Indoor Navigation

Business Problem: Venues needed contextual content delivery based on indoor location with custom branding per venue.

Solution: Built Android app for multi-tenant location-based content platform using Visual Light Communication (VLC).

Technical Implementation:

- MVP pattern for presentation layer
- Dynamic theming system rendering views based on organization config
- All-pairs shortest path algorithm for indoor navigation (backend)
- Observer, Singleton, Factory, Decorator patterns

Business Impact:

- Showcased at GITEX 2016 & 2017
- Won SAP Innovation Awards 2019
- First product shipped by Vision Valley

GPASSA Internal Staff App Jan 2016 - Apr 2016 | Cordova, Framework7, SharePoint 2013 REST APIs

Business Problem: GPASSA-UAE staff needed mobile access to SharePoint data but mobile experience was limited.

Solution: Built cross-platform app with full CRUD operations on SharePoint list data.

Business Impact:

- 80%+ SharePoint list type coverage on mobile
- Eliminated desktop dependency for common operations

EG Live Exchange Rates Nov 2016 | Cordova, Angular 1.x, Web Scraping

Business Problem: During Egypt's currency flotation, exchange rates varied across banks and changed rapidly.

Solution: Built real-time aggregator with self-healing system for bank availability.

Business Impact:

- Multi-bank rate aggregation during economic uncertainty
- Zero-maintenance through automatic availability detection

EDUCATION

Bachelor of Science in Computer Science Ain Shams University, Cairo | Class of 2015

PUBLICATIONS & SPEAKING

- **What They Don't Teach You at School** — School of Tech | [Video](#)
- **And Then Google Said: "Let There Be Guidance!"** — Medium | [Article](#)

LANGUAGES

- **Arabic:** Native
- **English:** Proficient