

Mostafa Mahmoud Abdelsalam

Full Stack Software Engineer | Distributed Systems • Workflow Orchestration • Ruby on Rails

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github.com/3bsalam | linkedin.com/in/mostafa-mahmoud-abdelsalam | Remote, works US and European hours

PROFESSIONAL SUMMARY

Full stack software engineer with over seven years building and operating production systems in Ruby on Rails, most recently as the majority author of a distributed workflow orchestration platform serving institutional financial analytics. Contributed 483 of 738 commits to that platform's Ruby on Rails and JRuby core API across four and a half years, redesigning its Airflow scheduling model, recovering worker-fleet capacity lost to leaked processes and reservations, and building its test harness and CI pipeline from nothing. Comfortable owning a system end to end, from Kubernetes and AWS infrastructure through Ruby on Rails and Python services to the React and Next.js interfaces on top.

CORE SKILLS

- **Distributed systems and orchestration:** Apache Airflow on AWS MWAA, Kubernetes worker fleets, Resque, atomic task coordination, concurrency control, self-healing schedulers
- **Backend engineering:** Ruby on Rails, JRuby, Python, REST API design, PostgreSQL, Redis, microservices, SOLID and clean architecture
- **Cloud and infrastructure:** AWS EC2, ECS, Lambda, S3, RDS Aurora, VPC, IAM, CloudWatch, CloudFormation, Docker, Kubernetes, GitLab CI/CD
- **Frontend engineering:** React, Next.js, TypeScript, Redux, Redux-Saga, Redux-Toolkit, AG-Grid, Highcharts, Material-UI, Tailwind CSS
- **AI-assisted development:** Claude Code, Cursor, Antigravity, agent-directed development across large existing codebases, reviewing generated code against production standards
- **Tools:** Git, RSpec, Minitest, Capybara, Playwright, Selenium, SimpleCov, WebMock, VCR, Sidekiq, Linux, Jira

PROFESSIONAL EXPERIENCE

Full Stack Software Engineer

October 2021 - Present

Tradelegs LLC • New York, USA (Remote)

- Authored 483 of 738 commits on the core workflow orchestration API across four and a half years, owning a Ruby on Rails and Python system that drives headless browser worker fleets on Kubernetes for institutional options analytics.
- Developed Apache Airflow DAGs on AWS MWAA driving 10 concurrent DAG runs and 140+ parallel tasks per run across multi-stage optimization, analysis and adjustment workflows.
- Replaced a starving max_active_runs scheduling model with an Airflow-native DateTimeSensor DAG, added trigger jitter to break thundering-herd bursts, and moved to one dispatcher per batch with self-healing for batches whose sensor never fired, guaranteeing no committed sequence is dropped.
- Recovered worker-fleet capacity by cutting a Selenium read timeout from 2.8 hours to 10 minutes, reaping orphaned Chrome processes, capping pod memory, and freeing leaked worker reservations that had previously required a manual restart.
- Diagnosed 500 second request stalls nobody had traced to a database connection pool sized below the application thread count, then resized the pool and added Redis-based caching to cut database load under concurrent traffic.
- Designed and implemented 30+ RESTful APIs in Ruby on Rails and JRuby, backed by PostgreSQL schemas using JSONB columns, multi-database routing, and atomic task claims via FOR UPDATE SKIP LOCKED.
- Built the test harness and GitLab CI pipeline from zero, wiring SimpleCov, WebMock, VCR, Timecop and FactoryBot, then ratcheting the enforced coverage floor from 5 to 10 percent as real coverage rose.
- Built 200+ React components using Redux and Redux-Saga across the job dashboard and monitoring interfaces, authoring 882 commits covering scheduling dialogs, on-hold job modes and crash-proof requeue behaviour.
- Managed production AWS infrastructure spanning VPC configuration, EC2, ECS, S3, RDS Aurora, IAM roles, CloudWatch logging and CloudFormation templates, alongside Kubernetes deployments with horizontal pod autoscaling and rolling updates.
- Delivered the 2026 scheduling redesign, worker-fleet reliability work and CI pipeline using Claude Code as the primary development tool, directing agent-assisted work across a four and a half year old codebase spanning 2,203 touched files while reviewing every change against production standards.

Application and Network Engineer

January 2021 - October 2021

Barkotel Communications · Cairo, Egypt

- Maintained the company website in HTML, CSS and JavaScript, handling content updates, layout fixes and browser compatibility for the public-facing presence of a network integration business.
- Provided network solutions for enterprise clients based on gathered requirements and project specifications, translating site constraints into equipment selection and topology recommendations.
- Configured Alcatel network switches and designed CCTV surveillance solutions for client sites, covering device configuration, network segmentation and physical layout planning across multiple installations.

Full Stack Ruby on Rails Developer

January 2018 - December 2019

Freelance · Cairo, Egypt

- Designed and built scalable CRUD applications and RESTful APIs in Ruby on Rails following clean architecture principles, delivering complete projects independently for multiple small business clients.
- Developed unit and end-to-end test suites using RSpec and Capybara, covering model logic, controller behaviour and full user journeys before each client handover.
- Deployed applications to production using Heroku and Capistrano, configuring environment variables, database provisioning and release pipelines so clients could ship updates without manual server work.
- Designed relational database schemas and customized Devise authentication for role-based access, adapting the default flows to each client's registration, confirmation and permission requirements.

EDUCATION

Bachelor of Computer and Information Science

2019

Ain Shams University · Cairo, Egypt

- Coursework across data structures, algorithms, databases, operating systems and computer networks, providing the systems grounding later applied to concurrency control, distributed job orchestration and relational schema design in production.

ADDITIONAL

- **Availability:** Open to full-time or part-time contract work. Based in Cairo, Egypt (UTC+2/+3) with 4+ years working US Eastern hours for a New York employer; comfortable across US and European hours. Available immediately, no notice period, no visa or sponsorship required.
- **Portfolio:** 3bsalam.github.io | github.com/3bsalam | linkedin.com/in/mostafa-mahmoud-abdelsalam
- **Selected Projects:** Factoryformance, a B2B marketplace I designed and built end to end on Rails 7.2 and Next.js 14 with TypeScript, PostgreSQL, Sidekiq, Playwright and GitLab CI, shipping 85+ feature tickets and three complete user journeys in five months as sole engineer through agent-directed development with Claude Code. Also a workflow orchestration platform running 25+ concurrent Kubernetes workers across 50+ job types, and an options analytics dashboard on a JRuby and React stack.
- **Languages:** Arabic (native), English (professional working proficiency).