Raisal Ahmad

Yogyakarta, Indonesia | raisal.ahmad.dev@gmail.com | linkedin.com/in/raisal-ahmad | github.com/raisal21

Applied-bachelor software engineer focused on real-time monitoring and telemetry for drilling and geothermal operations. Full-stack across React/TypeScript and .NET, with hands-on WITSML, time-series, and computer-vision experience built on industrial field problems.

Education

Universitas Gadjah Mada — Yogyakarta, Indonesia
B.A.Sc. in Internet Engineering Technology — GPA: 3.79/4.00 — *2021 – 2025*

Experience

Software Engineer Intern — Sep 2024 – Feb 2025
PT Parama Data Unit — geothermal mud-logging service — *Bekasi, Indonesia*

- Built an end-to-end web prototype (React, Node.js/Express) for real-time drilling-cuttings monitoring, streaming 1080p video to the dashboard via FFmpeg/HLS.
- Engineered a backend OpenCV pipeline to detect and quantify cuttings from camera feeds, writing timestamped results to PostgreSQL for continuous, downloadable logs.
- Shipped auth and security (OAuth 2.0, role-based access, user CRUD) plus historical date/time filters; containerized with Docker and ran end-to-end tests to a stable prototype presented to stakeholders.

Network Engineer Intern — Jun – Aug 2023
PT Dinamika Mediakom — Networking Division (NOC) — *Yogyakarta, Indonesia*

- Benchmarked fiber-optic vs wireless performance (speed, latency) and assisted the NOC in planning network topologies and monitoring.

Projects

RTDC — Drilling Telemetry Dashboard | *React 19, TypeScript, ECharts, MapLibre* — 2025 – 2026

- Built a control-room dashboard rendering live WITSML telemetry over WebSocket for 12 wells across 3 pads, with multi-track log charts, an interactive well map, and operator alarm acknowledgement.
- Parsed big-endian binary frames (DataView + Zod) at 10 Hz with auto-reconnect (exponential backoff) and role-based views for driller, geologist, and data-scientist.

WITSML Telemetry Server | *.NET 9, ASP.NET Core, WebSocket, QuestDB* — 2025 – 2026

- Built a WebSocket server broadcasting drill/geo rig telemetry as binary frames at 10 Hz and persisting to QuestDB (time-series) over ILP TCP.
- Decoupled the write path from the broadcast hot loop with a bounded channel so database latency never stalls streaming; added heartbeat liveness, slow-client backpressure eviction, and fail-closed token auth.
- Served pre-aggregated history through a tile API (1s–6h resolutions) that preserves min/max for safety-critical H2S and standpipe-pressure spikes.

EyeLog — Shale-Shaker Coverage Monitoring | *Thesis; Python, OpenCV, PySide6* — Mar – Oct 2025

- Built an offline-first desktop app monitoring geothermal shale-shaker operations, processing 3× 1080p@25 FPS RTSP streams locally with OpenCV at <0.01% frame loss.
- Delivered ∼85% F1 coverage detection (MOG2, morphology, temporal filtering) with threshold alerts to prevent mud-overflow events.
- Sustained ∼70% CPU via multithreading and Nuitka compilation; logged per-second time-series to CSV behind an interactive Qt UI (live video, trend charts, configurable ROI).

Technical Skills

Languages: TypeScript, JavaScript, Python, C#, SQL
Frontend: React 19, React Router v7, Next.js, Tailwind CSS, Zustand, TanStack Query, ECharts, MapLibre GL
Backend & Data: .NET 9 / ASP.NET Core, Node.js/Express, WebSocket, PostgreSQL, QuestDB (time-series), Docker
Computer Vision & Desktop: OpenCV, FFmpeg, PySide6 (Qt), RTSP/HLS

Awards & Certifications

PKM-RSH National Research Grant (Pekan Kreativitas Mahasiswa) — national funding recipient, 2022.

Rajawali SOE Scholarship grantee (Indonesian State-Owned Enterprise) — 2020.

Certifications: Cisco CCNA (Enterprise Networking), Huawei HCIA (Cloud, AI), MTCNA. **English**: IELTS Band 6.