Ainun Abidin

Software Engineer

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Professional Summary

Software Engineer and former Tech Lead Backend delivering geospatial APIs, data pipelines, and cloud deployments. Supported **1,000+ surveyors**, **10,000+ daily submissions**, and **70M+ records**. Combines **NestJS**, **TypeScript**, **PostgreSQL/PostGIS**, AWS, and Google Cloud with cause-first analysis, API security, CI/CD, and observability.

Technical Skills

Languages: TypeScript, JavaScript, Python, Go/Golang, Java.

Backend and APIs: Node.js, NestJS, Express.js, REST, GraphQL, Stripe, Kong, OpenAPI.

Databases and Spatial: PostgreSQL/PostGIS, pgRouting, Elasticsearch, MongoDB, Redis, OSRM.

Data Engineering: Kafka, Apache Beam, Apache Airflow, Google Cloud Dataflow, ETL and streaming.

Cloud and DevOps: AWS EC2/S3, GCP, Docker, GitHub Actions, Jenkins, Nginx, Grafana, Loki, Datadog.

Architecture and Security: HLD/LLD, microservices, DDD, CQRS, RBAC, JWT/OAuth, OWASP ASVS, Saga research.

Delivery and Testing: Next.js, React, Postman, Google Apps Script, Agile, SDLC, TDD.

Work Experience

FABROTEC (M) SDN. BHD. | Selangor, Malaysia

Backend Engineer / Software Engineer — Contract | Jan 2026 – Present

- Refactored **26 meetup-api modules** with **NestJS** and **TypeScript**, defining HLD/LLD and restructuring the monolith for cloud deployment.
- Implemented RBAC across **7 roles** and **2 services** for consistent authorization.
- Automated deployments across **2 environments** with **GitHub Actions**, **Docker**, **AWS EC2**, **Nginx**, and Grafana/Loki/Promtail logging.
- Reduced image payloads by **70%** using **Sharp** compression/resizing and **AWS S3** storage.
- Validated **Stripe** payments and notifications across **25 scenarios** using **Next.js**; automated Postman reporting with Google Apps Script.

PT Telkom Indonesia | Jakarta, Indonesia

Tech Lead Backend — Contract | Mar 2024 – Feb 2025

- Tuned PostgreSQL GIN search from **over 200 ms** to **200 ms or less**, including results below **100 ms**.
- Researched an internal alternative to **ArcGIS** using **GeoServer** and **Go (Golang)**, targeting comparable ease of geospatial visualization and coordinate-to-pixel rendering on basemaps.
- Architected national survey pipelines across **5 consuming systems** for B2B integration, analytics, and data science.
- Hardened **4 services** with encryption, access controls, and audit trails aligned with personal data protection requirements.
- Led **2 backend engineers** with **90% on-time delivery** through mentoring, backlog prioritization, delegation, and stakeholder alignment.

PT Telkom Indonesia | Jakarta, Indonesia

Backend & Data Engineer — Contract | Mar 2022 – Feb 2024

- Built **Node.js**/**Python**/**PostGIS** survey APIs for **1,000+ surveyors** and **10,000+ daily submissions** within a **2-person team**.
- Implemented geospatial restrictions and Denodo visualization; replaced third-party services, achieving **98% KPI compliance** and reducing costs.
- Built **Restify**/**PostGIS** mapping APIs with **50%+** performance improvement and **60%** cost efficiency.
- Accelerated streaming across **1M+ payment records** by **3×** using **Kafka**, **Apache Beam**, Java, and **Google Cloud Dataflow**.
- Reduced **Python**/Airflow ETL from **3 weeks to 1 week** for **70M+ records**, including **1.5M spatial records**.
- Reduced routing costs by **60%+** using **PostGIS/pgRouting**, **Node.js**, **Python**, Dijkstra, and travelling salesman optimization.
- Built **GraphQL** integrations for MyIndibiz and Tepat Pertamina showcase applications.
- Improved spatial search by **50%+** through **Elasticsearch** indexing and PostgreSQL partitioning.
- Optimized **3 TB+** across **PostgreSQL/PostGIS**, MongoDB, and **Elasticsearch** for **3+ applications**, improving queries by **50%+** through cleansing and index tuning.
- Researched **Kafka**-based Saga compensation across **more than 2 platforms** for rollback and data consistency.

PT Telkom Indonesia | Bandung, Indonesia

Researcher Intern | Jul 2020 – Dec 2020

- Generated **100 TTS audio samples** in no more than **2 minutes** using **Python**/**CUDA** across **4 GPUs**.
- Automated **Python** audio segmentation, reducing preparation of a 1-hour video from **up to 7 hours to under 1 hour**.

ISR Lab, PT Telkom Indonesia | Bandung, Indonesia

Research Assistant / Full-stack Developer — Contract | Jul 2019 – Jun 2020

- Investigated CMS/HLS streaming with **Express.js**, Handlebars, and **Nginx** during R&D.
- Designed schemas and UML/ERD documentation; evaluated **GitLab** and documented deployment procedures.

Notable Projects

HIKA Biofarma News App and CMS

Full-stack Developer | 2024

- Built a community news portal and CMS for **50+ users**.

Acateda

Full-stack Developer | 2023

- Built **Node.js**/Express/**PostGIS**/**OSRM** bicycle routing, passing **24/24 functional tests**.
- Achieved an **84.68%** ISO/IEC 9126-based user-evaluation score from **50 respondents**.
- Deployed on **Google Cloud VMs** with **Nginx**/PM2 and containerized **OSRM** autoscaling from **1 to 2 instances**.

Selected IoT Projects

- COVID-19 Vaccine Monitoring | Technician | 2022: Installed **NodeMCU/LoRa** monitoring devices.
- Home Security **LINE Bot** | Full-stack Developer | 2019: Integrated **Raspberry Pi** for home-status messaging.

Publications

- **Abidin, A. (first author), Widowati, S., and Alibasa, M. J. (2024).** Implementasi metode User Center Requirement Enginering untuk pengembangan Aplikasi Pencarian Rute Bersepeda. Journal of Information Technology Literacy, 1(1), 24–31.

Certifications and Training

- **React, including Next.js and Redux** — Udemy | 2024.
- **The Data Science Course:** Complete Data Science Bootcamp — Udemy | 2023.
- **Certificate of Creation Registration** — DJKI | 2023; registration 000487009.
- **Selenium WebDriver with Java** — Udemy | 2021.
- **Software Testing with Jira & Agile** — Udemy | 2021.
- **The Complete Cyber Security Course: Hackers Exposed!** — Udemy | 2020.
- **Basic Ethical Hacking Training** — Faculty of Informatics | 2018; training participant.

Education

Telkom University | Bandung, Indonesia

Bachelor's Degree in Informatics | Aug 2016 – Aug 2023

GPA: 3.33/4.00

Organizational Experience

HMIF, Telkom University | Bandung, Indonesia

Coordinator, Money Investment & Business | Feb 2019 – Jan 2020

- Led business initiatives, staff coordination, and financial reporting, achieving **2× profit** versus the previous term.

Staff, Money Investment & Business | Feb 2018 – Jan 2019

- Planned merchandise sales and partnerships; helped settle prior-period budget deficits.

Volunteering

- Fortran committee steering | 2019; committee coordinator | 2018; AKU and Helloworld funding committees | 2017.
- Coordinated budgeting for a 7-part orientation series, community outreach, and student events.