

Rizal Kurnia

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EDUCATION

Universitas Semarang

Semarang, Indonesia

Bachelor of Computer Science (S1 Teknik Informatika) | GPA: 3.77/4.00

Aug. 2022 – June 2026

- **Thesis (Grade: A):** "Komparasi Algoritma Content-Based Filtering dan Item-Based Collaborative Filtering pada Rekomendasi Indekos". Conducted an algorithmic benchmark comparing CBF and IBCF to evaluate recommendation accuracy and system performance.
- **Relevant Coursework:** Database Systems, Framework Programming, Data Mining, Machine Learning Fundamentals, Cloud Computing, Web Engineering.

EXPERIENCE

Backend Developer Intern

Feb. 2025 – June 2025

Diskominfo Kota Semarang

Semarang, Indonesia

- Engineered a backend system for a local primary school to manage operational data.
- Translated non-technical requirements into a structured relational database schema and deployed the final application.

Full-Stack Developer (Community Service Program)

Aug. 2025 – Oct. 2025

Kelurahan Cepoko

Semarang, Indonesia

- Implemented a web-based decision support system to identify and prioritize local UMKM products.
- Designed the analytical logic to determine priority products, aiming to optimize local business sales focus.

PROJECTS

KOSERA (Smart Property Recommendation) | *Python, FastAPI, Next.js, Microservices*

- Engineered a smart property recommendation platform utilizing a microservices architecture to isolate the frontend from heavy AI computations.
- Integrated Sentence Transformers to enable Semantic Search, allowing the system to translate natural language contexts into spatial vector calculations.

Fraud Detection Decision Engine | *Python, Pandas, Scikit-Learn, Random Forest*

- Engineered a risk-based Fraud Decision Engine analyzing 590K+ e-commerce transactions, shifting from standard binary classification to a 3-tier operational framework.
- Optimized data processing pipeline by implementing selective imputation strategies and data type downcasting, effectively reducing the dataset memory footprint by 55% (from 2.06 GB to 922 MB).
- Evaluated multiple tree-based ensembles against baseline Logistic Regression; selected Random Forest to capture 65.4% of observed fraud cases while intervening on only 3.06% of total transaction volume.

Telco Portfolio Dashboard & Incident Detection | *Python, NLP, Matplotlib, Seaborn*

- Processed raw user review datasets using an NLP pipeline to parse and classify multi-label customer complaints (Network, Pricing, App/System) into a structured analytical format.
- Engineered a Telco Friction Index (TFI) scoring system utilizing weighted category ratios and a 7-day moving average to monitor application release stability and track version-specific bugs.
- Implemented statistical anomaly detection using a 14-day rolling Z-Score model to identify mass infrastructure incidents and pricing sentiment shifts, isolating events exceeding a 2.0 standard deviation threshold.

TECHNICAL SKILLS & CERTIFICATIONS

Languages: Python, TypeScript, JavaScript, SQL, HTML/CSS

Data Science & ML: Pandas, NumPy, Scikit-Learn, Sentence Transformers, NLP, Matplotlib, Seaborn

Frameworks & Libraries: Next.js, React, FastAPI, Node.js, Astro.js, Tailwind CSS

Developer Tools: Git, Docker, Supabase, Vercel, Ubuntu/Linux

Certifications: IT Specialist - Databases (Pearson VUE, Dec 2025)