

SANTO PARNINGOTAN HUTAPEA

Software & AI Automation Engineer | Data & Full-Stack Developer

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PROFESSIONAL SUMMARY

Hands-on **Software & AI Automation Engineer** and **Data Science Undergraduate** at Universitas Terbuka with strong foundations in full-stack architecture, high-throughput data pipelines, statistical modeling, and LLM orchestration. Experienced in engineering production web systems, low-level binary parsers, computer vision interfaces, and autonomous AI agents using **Next.js**, **TypeScript**, **Supabase (PostgreSQL)**, **Python**, and modern LLM APIs (Gemini, Claude, OpenAI). Passionate about clean code, scalable database architectures, and engineering resilient digital solutions.

TECHNICAL SKILLS

Frontend & Web	Next.js (App Router), React.js, TypeScript, JavaScript, Tailwind CSS, HTML5, CSS3, Three.js, GSAP, Chart.js
Backend & Databases	Supabase, PostgreSQL, MySQL, RESTful APIs, Webhooks, Server Infrastructure, Data Warehousing, SQL Optimization
AI, LLM & Automation	Gemini API, Claude API, OpenAI API, LLM Tool Calling, RAG Architecture, AI Agents, Prompt Engineering, OpenCV
Data Science & Python	Python (Pandas, NumPy, Statsmodels), Multi-threading (Concurrent.futures), Logistic Regression, Microdata Analysis, Tableau Desktop, Advanced Excel, Hex/Binary Parsing
DevOps & Tools	Git, GitHub, Linux Terminal / Bash, Vercel CI/CD, Power BI, OBS Studio, System Debugging

PROFESSIONAL EXPERIENCE

AI & Full-Stack Software Developer Freelance / Contract	2024 – Present Bogor, Indonesia
- Architected and deployed responsive full-stack applications using Next.js, TypeScript, Tailwind CSS, and Supabase (PostgreSQL), achieving 99.9% uptime on Vercel. - Engineered automated AI pipelines and agentic workflows via Gemini, Claude, and OpenAI APIs with custom tool calling and webhook triggers, eliminating repetitive operational tasks. - Implemented secure database schemas, Row-Level Security (RLS), and optimized transactional queries in PostgreSQL to handle high-frequency client state and inventory updates. - Constructed interactive 3D and animated UI modules leveraging Three.js and GSAP, maintaining 60 FPS performance across modern client browsers.	

Digital Operations & Systems Specialist Freelance / Contract	2021 – 2024 Bogor, Indonesia
- Automated recurring business intelligence reporting pipelines using Python (Pandas) and Advanced Excel (XLOOKUP, Pivot Tables), reducing manual reporting overhead by 80%. - Analyzed digital campaign performance metrics across Meta Business Suite, scaling organic reach to over 54,000+ followers and 10,000+ interactions per publication. - Configured dedicated live broadcast server infrastructure (OBS Studio, RTMP/SRT) and network routing protocols to ensure 0% technical downtime during multi-hour high-stakes events.	

KEY ENGINEERING & DATA PROJECTS

IHSG Automated Multi-Threaded Stock Screener & Analytics Engine	2026
<i>Python (Pandas, Concurrent.futures), Yahoo Finance API, Technical Indicators (RSI, MA), Seaborn, Supabase</i> - Engineered a concurrent multi-threaded data pipeline utilizing concurrent.futures to ingest real-time fundamental ratios (PER, PBV, ROE) and 1-year historical OHLCV data across Indonesian stock market (IHSG) tickers. - Programmed an automated screening algorithm combining technical momentum filters (MA20/50 crossovers, RSI-14) and fundamental valuations to identify undervalued equities with dynamic dual-panel visual exports.	
ECU Hexadecimal Data Parser & 3D Surface Mapping Simulator	2026
<i>Python, Low-Level Binary File I/O, Hexadecimal Streams, NumPy, Matplotlib 3D, Pattern Recognition</i> - Engineered low-level Python scripts to parse unstructured raw binary memory dumps from vehicle ECU flash ROMs via byte-pattern matching algorithms. - Converted raw hexadecimal byte streams into structured multidimensional numerical matrices (NumPy) for automated calibration tables and interactive 3D surface mapping.	

Real-Time AI Computer Vision & Dynamic Gesture Interaction System2026

- Python, OpenCV, Computer Vision, Real-Time Hand-Gesture Tracking, Face Recognition
- Developed a real-time computer vision processing pipeline using **Python and OpenCV** featuring multi-functional object detection, facial recognition, and low-latency spatial tracking.
 - Implemented interactive hand-gesture recognition modules to translate spatial coordinates into dynamic UI control commands with real-time video stream processing.

Econometric Logistic Regression Modeling (SUSENAS BPS Microdata)2026

- Python (Statsmodels, Pandas, NumPy), Multiple Logistic Regression, Microdata Diagnostics
- Constructed econometric multiple logistic regression models on thousands of national SUSENAS BPS micro-sample records to predict household vehicle asset acquisition probabilities.
 - Executed rigorous outlier removal, multicollinearity diagnostics (VIF), and missing-value treatments, achieving a **McFadden Pseudo R-Squared of 60.8%** with high statistical significance.

Forge Barber POS – Integrated Point of Sale Web Application2026

- Next.js (App Router), TypeScript, Tailwind CSS, Supabase (PostgreSQL), Vercel
- Developed a full-stack POS application featuring atomic inventory tracking, real-time cart calculations, and daily cashier shift reconciliation reports, boosting operational efficiency by 30%.

EDUCATION & CERTIFICATIONS

Universitas Terbuka | Bachelor of Science in Data Science2025 – Present | Indonesia(S1 Sains Data)

Relevant Coursework: Database Systems & SQL, Data Structures & Algorithms, Python & Java OOP, Applied Linear Models, Data Warehousing.

Professional Certifications:

- **LLM-Based Tools & Gemini API Integration for Data Scientists** – Maju Bareng AI / Hacktiv8 Indonesia, Google.org, ADB & AVPN (2026)
- **Snowflake Discover AI Certification** – Snowflake (2026)
- **Intro to Data Analytics Certification** – RevoU (2026)
- **Tableau Desktop Fundamentals** – Zenith Academy (2025)