VILLYAN SUTANTO

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SUMMARY

Computer Science and Mathematics undergraduate at BINUS University who builds end-to-end systems across machine learning, spatial analysis, optimization, and IoT. Experienced in developing YOLOv8-based traffic optimization systems and PostGIS-backed WebGIS platforms. Seeking internships in AI Engineering, Data Analysis, or GIS Engineering.

EDUCATION

Bina Nusantara (BINUS) University - *School of Computer Science* 2023 - 2027
Bachelor's degree in Computer Science and Mathematics · **GPA 3.85/4.00** Jakarta, Indonesia
Relevant coursework: Computational Geometry, Abstract Algebra, Real Analysis, Mathematical Modelling, Cloud Architecture (AWS), Data Structures, Algorithm Design, Software Engineering.

EXPERIENCE

Regional Secretary - *Core Governing Board* Feb 2025 - Feb 2026
Keluarga Mahasiswa Katolik (KMK) BINUS University @Kemanggisan Jakarta, Indonesia

- Managed incoming and outgoing organizational documents such as proposals, accountability reports, MoA, MoU, Terms of Reference, and Minutes of Meeting.
- Monitored and evaluated the performance of division heads and their teams in executing departmental responsibilities and organizational events.

Freshmen Mentor — Freshmen Leader and Freshmen Partner Aug 2024 - Feb 2026
First Year Program B28, BINUS University @Kemanggisan Jakarta, Indonesia

- Guided new students through the transition to campus life, introducing the university environment, communities, activities, academic programs, and available resources.
- Mentored freshmen on BINUSian values and the Sustainable Development Goals, and supervised their community service activity on sustainable energy awareness in schools.

PROJECTS

StaSIUN - *Station Spatial Intelligence for Urban Network* 2026 - Present
MAPID WebGIS Competition 2026 Top 50 · github.com/Vleeflu/StaSIUN · Next.js · FastAPI · PostGIS · QGIS · OCR · NLP

- Building a geospatial economic intelligence platform that scores Indonesian train stations (Jakarta MRT, LRT, KRL, BRT data in QGIS) with a five-variable Spatial Economic Potential Index (SEPI).
- Set up a FastAPI + Next.js monorepo on a Dockerised PostGIS database; wrote spatial queries with ST_DWithin, ST_VoronoiPolygons and GiST indexes in UTM 48S (EPSG:32748).
- Audited MAPID datasets (StrukGo, MenuGo, PropertiGo, Community Maps) to design the schema, identifying missing transaction amounts as the driver for an OCR pipeline.
- Designed an S-MCDA pricing model for station naming rights: AHP + SAW scoring, TOPSIS ranking, IndoBERT/NER buyer matching and ILP portfolio optimization.

Traffic Signal Optimization with Computer Vision and Metaheuristics May - June 2026
Applied Mathematics Modelling and Undergraduate Thesis Research · github.com/Vleeflu/TrafficSignalOptimizationHHO · Python · YOLOv8 · OpenCV · Harris Hawks Optimization

- Integrated YOLOv8 vehicle detection with Markov queueing simulation and empirical arrival distributions to optimize signal phase timings, replacing the Genetic Algorithm baseline with Harris Hawks Optimization to accelerate convergence during phase-timing search.
- Processed ~2.9M detection records, converted vehicle counts to PCU per PKJI 2023, and dynamically calibrated saturation flow against a ρ = 0.80 target, achieving a 49.9% reduction in traffic delay.

Gojek App Review Sentiment Analysis May - June 2026
Text Mining and NLP Course Project · github.com/Vleeflu/GojekSentimentReview · Python · IndoBERT · Topic Modeling

- Classified sentiment in Indonesian-language Gojek reviews by application version with IndoBERT and surfaced complaint themes with LDA; co-authored an IEEE-format report.

Integrated IoT Door Lock with RFID, Ultrasonic Sensor, and Camera May - June 2025
Embedded Systems and IoT Course Project · github.com/Vleeflu/IoTDoor_RFID_Ultrasonic · ESP32 · Arduino IDE · C++

- Developed a smart door-lock prototype on an ESP32 combining RFID authentication, ultrasonic proximity detection, and camera-based monitoring, with control logic in C++.

SKILLS AND OTHER ACHIEVEMENTS

- **Programming:** Python, C++, SQL, PHP, JavaScript, TypeScript, HTML/CSS
- **ML, NLP, Computer Vision:** TensorFlow, Keras, PyTorch, YOLOv8, BERT, Word2Vec
- **Geospatial:** PostGIS, QGIS, Leaflet.js, spatial clustering, Voronoi / Delaunay methods
- **Optimization & Decision:** AHP, SAW, TOPSIS, ILP, dynamic programming, Markov chains, metaheuristics (Harris Hawks Optimization, GA)
- **Engineering:** FastAPI, Next.js, Docker, Git / GitHub, pytest (TDD), Vercel, AWS (EC2, S3, Lambda)
- **Certificate & award:** Fundamentals of Deep Learning (NVIDIA) · Top 50, MAPID WebGIS Competition 2026
- **Spoken languages:** Indonesian (native) · English (professional working)