

GERRIT EZRA YUDI KAIRUPAN, S.T.

Data & Digital Product Specialist | Certified Associate Data Scientist (BNSP)

South Jakarta, Indonesia | +62 851-4728-3094 | gerritezra.work@gmail.com
gerritezra.my.id | linkedin.com/in/gerritezra | github.com/gerritezra

SUMMARY

I'm Gerrit, a Bachelor of Engineering in Information Engineering from Universitas Gadjah Mada (cum laude), certified as an Associate Data Scientist by BNSP. I currently work at the Ministry of Public Works as a core developer of SIPro, a platform that integrates five government applications to support national infrastructure planning, programming, and budgeting. I previously worked as a Product Quality Assurance Analyst of Automation Product at PT Bank Central Asia, focusing on RPA and OCR technologies, and gained hands-on experience as a Data Analyst intern and Product Manager intern building digital products that address real user needs. My passion lies at the intersection of product management and data, especially data analytics, data science, and data engineering, to create meaningful social impact. Named Best Student at Bank Mandiri's innovation bootcamp, I have built strong project management, leadership, and communication skills and am currently pursuing the Professional Engineer Program at Universitas Indonesia.

EDUCATION

Formal Education

Depok, ID
Feb 2026 – Present

UNIVERSITAS INDONESIA, Faculty of Engineering
Professional Engineer Program (Program Profesi Insinyur), Informatics Engineering

- Cumulative GPA: **4.00/4.00** (10 credits).
- Engineering Practice Report: *SIPro Re-engineering Project: Development of the Programming Information System (SIPro) to Support Planning, Programming, and Budgeting at the Ministry of Public Works.*
- Applied a systems engineering approach to SIPro through requirements and stakeholder analysis, component integration, a 12-month implementation plan, risk analysis, financial feasibility (NPV, BCR, payback period), and multi-criteria decision analysis to select the best development option.

Yogyakarta, ID
Aug 2019 – Jul 2023

UNIVERSITAS GADJAH MADA, Department of Electrical and Information Engineering
Bachelor of Engineering in Information Engineering (Data Engineering Career Path)

- Graduated **cum laude** with a GPA of 3.55/4.00 (150 credits); awardee of the ADiK (Afirmasi Pendidikan Tinggi) scholarship from the Ministry of Education, Culture, Research, and Technology.
- Thesis: *Analysis of Machine Learning Model Development for Thesis Supervisor Recommendations at DTETI FT UGM Using Naive Bayes, Artificial Neural Network, and Long Short-Term Memory.*
- Relevant coursework: Artificial Intelligence, Natural Language Processing, Big Data and Analytics, Database Engineering, Software Engineering, Software Architecture, Digital Transformation, IT Audit and Risk Management.

Informal Education

Remote, ID
Nov 2023 – Jun 2024

LINTASARTA CLOUDEKA DIGISCHOOL 2023
Machine Learning Developer (MLOps) Learning Path, Scholarship Program

- Selected as one of **150 awardees** from more than 30,000 applicants.
- Learned neural networks with TensorFlow and Keras, NLP, time series, image classification, recommendation systems, and reinforcement learning, gaining skills in deep learning, model deployment, and MLOps pipelines.
- Deployed models with TensorFlow Serving and Docker on Cloudeka Deka Flexi cloud hosting, applying Python clean code principles.

Remote, ID
Jul 2023 – Mar 2024

RAKAMIN ACADEMY
Data Science Bootcamp, Digital Talent Scholarship

- Selected for the Digital Talent Scholarship from 10,000+ applicants and graduated with an **Excellent grade (89.56/100)**, ranked **4th of 63 participants**.
- Learned SQL, Python, data processing, statistics, data visualization, supervised and unsupervised learning, deep learning, and business understanding, gaining skills in data analysis, machine learning, and collaboration with Git.
- Built a machine learning capstone that predicts used car auction prices and translated the model results into business recommendations for real market challenges.
- Served as class coordinator, leading communication between participants and the academy throughout the program.

Jakarta, ID
Dec 2023 – Feb 2024

MY DIGITAL ACADEMY BY BANK MANDIRI
Innovation Bootcamp

- Selected from more than 30,000 applicants and named **Best Student** of the bootcamp.
- Developed skills in product management, UI/UX design, data analysis, low-code application development with OutSystems, and product pitching through intensive, project-based training.
- Developed **Finku**, a platform idea that connects multiple digital wallets and bank accounts in one integrated experience, taking it from idea generation and validation through low-code development to the final pitch.
- Assessment scores: Idea Development 100, Low Code Development 98, Product Innovation 98, Idea Validation 98, Idea Generation 95.50, Communication 95.00, Management 86.25, Leadership 83.75.

Remote, ID
Feb 2022 – Sep 2022

PT BISA ARTIFISIAL INDONESIA (BISA AI ACADEMY)
Artificial Intelligence Technology Researcher Program

- Completed 20+ courses in data science, machine learning, data mining, image processing, and full-stack development, gaining practical experience with Python, Google Colab, Flask, MySQL, OpenCV, and Google Data Studio.
- Built end-to-end web applications with Flask, React, and MySQL and worked through the full data process from preprocessing to modeling.

PROFESSIONAL EXPERIENCE

Jakarta, ID
Jun 2025 – Present

MINISTRY OF PUBLIC WORKS REPUBLIC OF INDONESIA
Junior Expert of IT & Data Specialist at National Regional Infrastructure Development Planning

- **SIPro re-engineering.** Serve as a core developer in re-engineering SIPro, replacing fragmented Excel-based workflows with a centralized Laravel and Tailwind platform that improves data integration and accessibility for national infrastructure planning, programming, and budgeting.
- **Solution design and validation.** Translated user needs into system specifications with the systems analyst and user units, designed the relational database architecture and data models for seven core modules, and validated two UI alternatives with seven users, selecting a design that cut total task time by about 22%.
- **System integration.** Build and maintain API-based data exchange between SIPro and five government applications, the programming systems of four directorates general (e-Prog, SiTIA, SIPPa, Sadayana) and the budgeting platform (i-eMonitoring), so program proposals and budgets are consolidated in one place.
- **AI-enabled Decision Support System.** Contribute to the roadmap for evolving SIPro into a Decision Support System from 2027, covering AI-based prioritization of program proposals, geospatial analytics, what-if budget simulation, and use of historical data.
- **Expert engagement.** Helped organize an expert focus group with ITB, BRIN, Telkom University, and Bisa AI and a DSS benchmarking at the Bandung City Government, and drafted terms of reference for data science, geospatial, and system analyst experts.
- **Geospatial data analytics.** Analyzed water resources infrastructure agreements and road infrastructure needs across five Papua provinces using Python and GeoJSON, processing geospatial data to speed up feasibility assessments and align them with national and regional development targets.
- **Process automation.** Automated data entry for the Presidential Instruction on regional road development in Maluku and North Maluku with Microsoft Power Automate, after validating requirements with local governments, reducing processing time by 70% and improving data reliability.

Jakarta, ID
Jan 2024 – Jun 2025

PT BANK CENTRAL ASIA TBK (BANK BCA)
Product Quality Assurance Analyst of Automation Product (RPA & OCR)

- Ensured the quality of 40+ robotic process automation (RPA) and optical character recognition (OCR) projects across banking processes, including credit, stocks, deposit accounts, human development, and audit.
- Initiated the automation of the manual, time-consuming OCR user acceptance testing process with Microsoft Power Automate and built a Python accuracy evaluation using Levenshtein distance for more precise and reliable results.
- Analyzed automation requirements with business analysts, covering process flows, data requirements, exception handling, and queue management, and translated them into structured test scenarios and test data.
- Designed 300+ test scenarios covering 20+ project conditions, collaborating with 8+ automation business analysts, 6 RPA developers, 4 data scientists, and 15 user teams.
- Conducted user acceptance testing after modified system integration testing, coordinated defect resolution with development teams, and confirmed user readiness before production deployment.

Yogyakarta, ID
Aug 2023 – Dec 2023

PT SADASA AKADEMI INDONESIA (SADASA ACADEMY)
Associate Product Owner of Data Science Video Learning on Demand (VLOD)

- Conducted research and led the development of eight data science learning paths for the upcoming rollout of the VLOD product.
- Evaluated the quality and effectiveness of video content against the learning paths to ensure strong content delivery and knowledge acquisition.
- Conducted continuous product and market analysis to identify real-world data science opportunities and keep the content aligned with industry trends.

Yogyakarta, ID
Sep 2023 – Dec 2023

PT GIT SOLUTION
Product Manager Intern

- Led the development of a machine learning product that predicts vehicle emission test eligibility, coordinating four technical teams (data science, UI/UX, front end, back end).
- Defined product goals and developed the product requirements document (PRD) and supporting technical requirements to guide the development teams.
- Facilitated daily stand-ups and sprints using Agile Scrum and monitored progress against the schedule and deliverables.

Yogyakarta, ID
Apr 2023 – Dec 2023
Feb 2023 – Dec 2023

UNIVERSITAS GADJAH MADA
Data Analyst

- Analyzed and visualized institutional data to give stakeholders actionable insights, ensuring data accuracy and consistency with institutional standards.
- Collected and processed community service data using analytical methods, machine learning algorithms, and predictive models, working with the team to improve the efficiency of future initiatives.

Laboratory Assistant of Senior Project (Network, Cloud & AI)

- Assisted instructors and laboratory technicians in preparing and running Senior Project practical sessions.
- Performed and demonstrated technical lab tasks, including network configuration and simulation in Cisco Packet Tracer, cloud computing on Microsoft Azure, and machine and deep learning with TensorFlow.
- Guided and tutored 40+ students who needed extra help with networking, cloud computing, and machine learning.

Jakarta, ID
Dec 2022 – Jan 2023

MINISTRY OF FINANCE OF THE REPUBLIC OF INDONESIA

Data & Software Analyst Intern

- Built an interactive Google Data Studio dashboard to visualize and track auction performance across regions in Indonesia.
- Analyzed national auction performance data with Python and Microsoft Excel and presented actionable insights through reports and visualizations.
- Developed the Sistem Informasi Penilai (SIP), an appraiser information system that supports the Directorate General of State Assets in land valuation and the assessment of property values across regions.
- Collaborated with the software team to re-engineer and improve the lelang.go.id auction platform, refining features to enhance functionality and user experience.

Remote, ID
Dec 2021 – Feb 2022

PT DOA ANAK DIGITAL (BANGBELI)

Data and Growth Analyst Intern

- Analyzed and visualized 30+ key performance indicators (KPIs) to identify growth opportunities and recommend improvements to the app.
- Conducted user research and monitored acquisition and transaction performance to support data-informed growth and product decisions.
- Produced 4+ weekly reports on acquisition and transaction data and built a Looker Studio dashboard with SQL and spreadsheets that made weekly reporting more efficient.

Remote, ID
Mar 2022 – Sep 2022

PT DIBIMBING DIGITAL INDONESIA (BOOTCAMP DIBIMBING)

Data Science Bootcamp Class Manager Intern

- Coordinated with 8+ mentors to ensure effective communication and class execution, keeping bootcamp operations running smoothly for about 50 students.
- Managed student assessments, including projects, assignments, coding exercises, and post-tests, and reviewed and gave feedback on data science mid-term and final exams.
- Collected and analyzed student feedback to improve the bootcamp learning experience.
- Delivered 5+ additional classes and tutoring sessions on Python, data science, machine learning, and SQL.

PROJECTS

SIPro, National Infrastructure Programming Information System [Project Access] *Jun 2025 – Present*
Fragmented Excel-based workflows made it difficult for the Ministry of Public Works to manage infrastructure planning, programming, and budgeting data consistently. As a core developer in the SIPro re-engineering, designed the relational database architecture and developed core features with Laravel and Tailwind CSS, then integrated the platform through APIs with five government applications. The result is a centralized source of data for national infrastructure planning and the foundation for an AI-enabled Decision Support System.

TRIASE-Void, Void Risk Mitigation and Floating Solar Mapping via Satellite Imagery and Machine Learning [Project Access] *Oct 2026*
Since 2011, at least 53 people have died in abandoned coal mining pits in East Kalimantan. Designed TRIASE-Void, which maps flooded mining voids from Sentinel-2 and Sentinel-1 imagery with a two-stage Random Forest, ranks them for field verification, and screens them for floating solar power. In a 148 km² pilot, the model reached an F1 score of 0.86 and produced a registry of 41 voids (114.4 ha), 9 high-priority sites, and a 0.52–1.05 MWp floating solar candidate. Selected as a Top 5 Finalist from 300+ participants in the national Energy Essay Competition (EISC 2026) and presented at BRIN.

OCR UAT Automation and Accuracy Evaluation, Bank Central Asia [Project Access] *Aug 2024*
User acceptance testing for BCA's OCR products was manual and time-consuming, involving repeated data preparation, system input, and accuracy recapitulation. Automated this workflow with Microsoft Power Automate to reduce manual testing work and streamline evaluation. Complemented the automation with a Python accuracy assessment based on Levenshtein distance, giving the team a more precise and reliable measure of text recognition quality.

Machine Learning Thesis Supervisor Recommendation, UGM [Project Access] *Jul 2023*
Master's students at DTETI FT UGM often struggle to choose a thesis supervisor whose expertise matches their research topic. Built a recommendation tool by scraping 3,208 publication titles of 20 lecturers from Google Scholar (1,474 used), then applied text preprocessing, oversampling, and TF-IDF features to compare Naive Bayes, ANN, and LSTM with 5-fold cross-validation. The ANN performed best with 82% accuracy, about 9–10% above the other models, and reached 85.26% accuracy, 85.35% recall, 85.25% precision, and an 84.74% F1 score on the test set, with 21-second training and 0.12-second prediction time.

Car CO2 Emission Inspection Prediction Website [Project Access] *Jun 2022*
Developed, as a team project for a Decision Support Systems course, a web application that predicts whether a car needs further CO2 emission inspection. Implemented an XGBoost regression model as the prediction engine, with a Flask back end and an HTML/CSS front end, and deployed the application on Heroku so that predictions are accessible through a simple web interface.

Sentiment Analysis of Sexual Harassment Discussions on Twitter [Project Access] *Dec 2021*

Analyzed public conversation about sexual harassment on Twitter through a natural language processing pipeline. Merged multiple tweet datasets, cleaned the text, applied lemmatization, and extracted features with TF-IDF. Trained a Random Forest classifier that achieved an F1 score of 93.5%, showing how machine learning can help understand public sentiment on sensitive social issues.

IoT Malware Classification [Project Access] *Oct 2021*

Built a multi-class machine learning model that distinguishes categories of IoT malware to support cybersecurity analysis. Represented the data with TF-IDF feature weighting and trained a Support Vector Machine classifier in Jupyter Notebook. The model achieved an F1 score of 95.61% on the test set, demonstrating an effective supervised learning approach to malware detection.

KEY SKILLS AND EXPERTISE

- **IT Solution Design & Digital Product:** requirements analysis, product requirements documents (PRD), relational database design, data modeling, API integration, decision support systems, usability testing, Agile Scrum, OutSystems, Draw.io, Visio
- **Data Science & Machine Learning:** Python, R, Pandas, NumPy, Scikit-learn, TensorFlow, Keras, XGBoost, Random Forest, SVM, LSTM, NLP, deep learning, computer vision (OpenCV), recommendation systems, model evaluation
- **Data Engineering & Analytics:** SQL, MySQL, ETL, data cleansing and wrangling, GeoJSON, web scraping, Looker Studio (formerly Google Data Studio), Excel (pivot tables, advanced formulas), Azure Synapse Analytics
- **Programming & Application Development:** PHP (Laravel), Python (Flask), JavaScript, React, Tailwind CSS, HTML/CSS, C, C++, C#, Git/GitHub
- **Cloud, MLOps & Automation:** Microsoft Azure, Docker, TensorFlow Serving, Cloudeka Deka Flexi, Heroku, Microsoft Power Automate, UiPath, OCR, system integration testing (SIT), user acceptance testing (UAT)
- **Leadership & Management:** project and product management, cross-functional team coordination, stakeholder management, technical mentoring, public speaking, ClickUp, Trello

CERTIFICATION

- **Competency:** Certified Associate Data Scientist (CADS), Badan Nasional Sertifikasi Profesi (BNSP)
- **Training and program completion:** Google Project Management (Google Career Certificates); Machine Learning Developer (MLOps), Lintasarta Cloudeka Digischool; Data Science Bootcamp, Rakamin Academy; Machine Learning with TensorFlow, Google Academy; Data Engineer, DQLab; Big Data Associate and Database Associate, Alibaba Cloud; Azure, Data, and AI Fundamentals, Microsoft x UKSW; Product Management & UI/UX Bootcamp, SYNRGY Academy; AI Technology Researcher, Bisa AI; Data Analyst Path, Microsoft x Prestasi Junior Indonesia; Machine Learning & Web Development, Dicoding. (all certificates)

LANGUAGES

- **Bahasa Indonesia** – Native proficiency
- **English** – Professional working proficiency, TOEFL iBT 87 (CEFR B2–C1, approx. IELTS 6.5) and TOEFL ITP 583 (Listening 61, Structure 53, Reading 61)

LEADERSHIP & ORGANIZATIONAL EXPERIENCES

Yogyakarta, ID
Feb 2021 – Dec 2022

KOMATIK UGM (ICT Student Community)
Head of Secretarial Division (Staff, Feb – Nov 2021)

- Led a three-member division and coordinated secretarial operations across six technical and two managerial divisions to support organizational activities.
- Facilitated GEMASTIK, the national ICT competition, in Data Mining, Software Development, and Cyber Security, supervising and assisting 30+ participants.

Yogyakarta, ID
Dec 2021 – Dec 2022

BEM KMFT UGM (Student Executive Board, Faculty of Engineering)
National Strategic Issues Coordinator, Ministry of Strategic Research and Analysis

- Coordinated discussions and analyses of strategic issues spanning technology, engineering, social affairs, and politics to support the ministry's research activities.
- Produced 7+ comprehensive studies on engineering issues in collaboration with the ministry team.
- Mentored new staff in identifying, analyzing, and structuring problems to strengthen their contributions to engineering studies.

Yogyakarta, ID
Dec 2019 – Dec 2021

KMTETI FT UGM (Electrical and Information Engineering Student Association)
Head of Secretary (Vice Secretary, Dec 2019 – Dec 2020)

- Evaluated and gave feedback on 500+ organizational documents in 2021 and 250+ in 2020, maintaining administrative quality and consistency.
- Designed and supervised secretarial procedures for correspondence, work program bookkeeping, and archives across two terms.
- Coordinated administration with seven divisions, one bureau, eight semi-autonomous bodies, and external parties.

Yogyakarta, ID
May 2020 – Oct 2021

PPSMB FT UGM 2021 (Faculty of Engineering Student Orientation)
Head of Secretarial Bureau (Staff, May – Oct 2020)

- Led two sub-bureaus with 11 members, applying data-driven and measurable approaches to secretarial operations.
- Developed an automated attendance and data recording system for about 1,400 freshmen and programmed a Visual Basic application that generated 270+ PDF certificates.
- Created personalized HTML/CSS emails for about 1,400 freshmen, established the secretarial workflow for 60+ co-facilitators, and compiled 200+ activity documents.