



PORTFOLIO

ARIQ BAGUS SUGIHARTO



INTRODUCTION



I design and ship end-to-end products that connect data, machine learning, and user experience. From an IoT smart bottle station with on-device insights to web platforms and computer vision tools, I enjoy turning real-world problems into clear, usable solutions. I learn fast, document carefully, and iterate until the result feels simple for users and solid for engineers.



HELLO, I'M ARIQ BAGUS SUGIHARTO !

Hello, I'm Ariq Bagus Sugiharto. I like turning ideas into working products and growing a little every day.



MY EDUCATION

I learn by building and validating ideas in the real world. My studies in Informatics trained me to connect solid theory with working systems, from device and data collection to modeling and clear user experiences. Teaching labs kept my fundamentals sharp and my explanations simple.

INSTITUT TEKNOLOGI NASIONAL, BANDUNG [INFORMATICS (GPA 3.95/4.00)]

Final thesis focused on personalized daily water-intake prediction using IoT data and XGBoost with feature engineering. Served as Laboratory Assistant for Object-Oriented Programming, Digital Image Processing, Multimedia, and Basic Programming, mentoring projects and guiding fundamentals that map directly to real product work



ENTREPRENEURSHIP DAY DIES
NATALIS (2024)



INFORMATICS IOT
EXHIBITION (2024)





PERSONAL SKILLS

I turn goals into products that people can actually use. I focus on clear flows, measurable outcomes, and fast iteration, while keeping code readable and teamwork smooth. I communicate decisions, ask for feedback early, and ship reliably.

PRODUCT EXECUTION

turn requirements into simple flows, measure outcomes, iterate quickly.

FULL-STACK FUNDAMENTALS

APIs, databases, real-time updates, clean UI that favors action over noise.

COMMUNICATION

teaching assistance, public demos, technical storytelling.

APPLIED ML AND DATA

feature engineering, model validation, practical metrics and trade-offs.

COLLABORATION

version control, code reviews, clear documentation, reliable handoffs.



WORK EXPERIENCE

I deliver production features in real teams and environments. I translate business needs into secure APIs, useful interfaces, and maintainable workflows, then show the impact through concise demos and documentation. My habit is to keep things simple, consistent, and ready to improve.

APPLICATION DEVELOPER – PT SINERGI TRANSFORMASI DIGITAL (FEBRUARY - JUNE 2024)

Built and improved enterprise HRIS and Sakura websites: automated attendance, API integrations, interactive maps, dashboards, WBS flows, scheduled data sync, and secure data updates. Collaborated with a team using Git and GitHub, and focused on performance and usability.

LABORATORY ASSISTANT – ITENAS

Object-Oriented Programming (March - June 2025), Digital Image Processing (March - June 2025), Multimedia (September 2024 - January 2025), Basic Programming (September 2023 - January 2024). Taught fundamentals, guided student projects, and reinforced best practices in software design and experimentation.



DAILY WATER INTAKE PREDICTION FOR PERSONAL HYDRATION ASSESSMENT USING XGBOOST AND FEATURE ENGINEERING WITH DATA FROM A SMART BOTTLE STATION

2024-2025

ROLE/POSITION

Full-Stack ML and IoT Developer

TYPE

Self-initiated thesis project within an academic requirement

PROJECT

[click here for more](#)

TOOLS

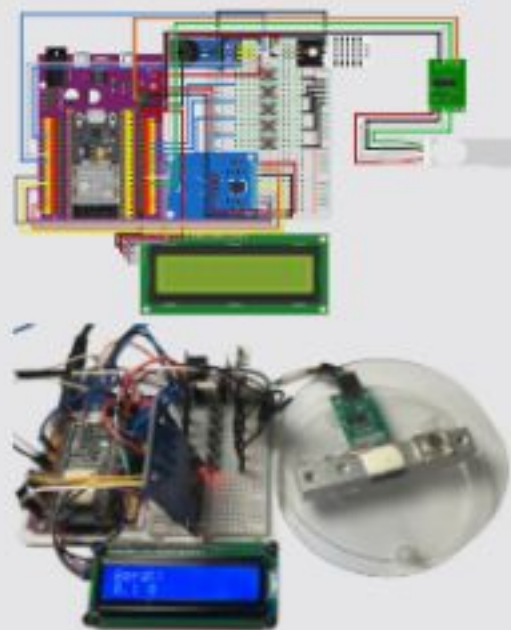


ARTWORK/PROJECT DESCRIPTION

An RFID-enabled IoT bottle station measures drinking events with a calibrated 5 kg HX711 on an ESP32, identifies users via RC522, streams data to a Laravel and MySQL backend, and updates an Android app in real time. An XGBoost model with time and behavior features predicts daily intake, which the app turns into clear day plans and "drink now" suggestions.

I owned the full pipeline from hardware and firmware to backend APIs and WebSocket streaming, feature engineering with time-series validation and hyperparameter tuning, and a Jetpack Compose UI focused on actionability. This shows my motivation to connect IoT, ML, and mobile into a product that helps people act, not just read numbers.

Results were strong in a representative evaluation: R^2 0.849, MAE 33 mL, RMSE 39 mL, SMAPE 1.68 percent. I learned sensor calibration in real conditions, reliable real-time data flows, rigorous model evaluation, and product thinking that translates metrics into simple guidance.



ARIQ BAGUS SUGIHARTO

NATIONAL INSTITUTE OF TECHNOLOGY BANDUNG

Graduated with a 3.95 GPA

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Portfolio Submission For
**APPLE DEVELOPER
ACADEMY COHORT 2026**

EDUCOURSE (ADAPTIVE-LEARNING WEBSITE)

2025

ROLE/POSITION

Cloud and Full-Stack Engineer
(React Frontend, Backend/API, and DevOps)

TYPE

Class assignment (IFB-452 Cloud Computing)

PROJECT

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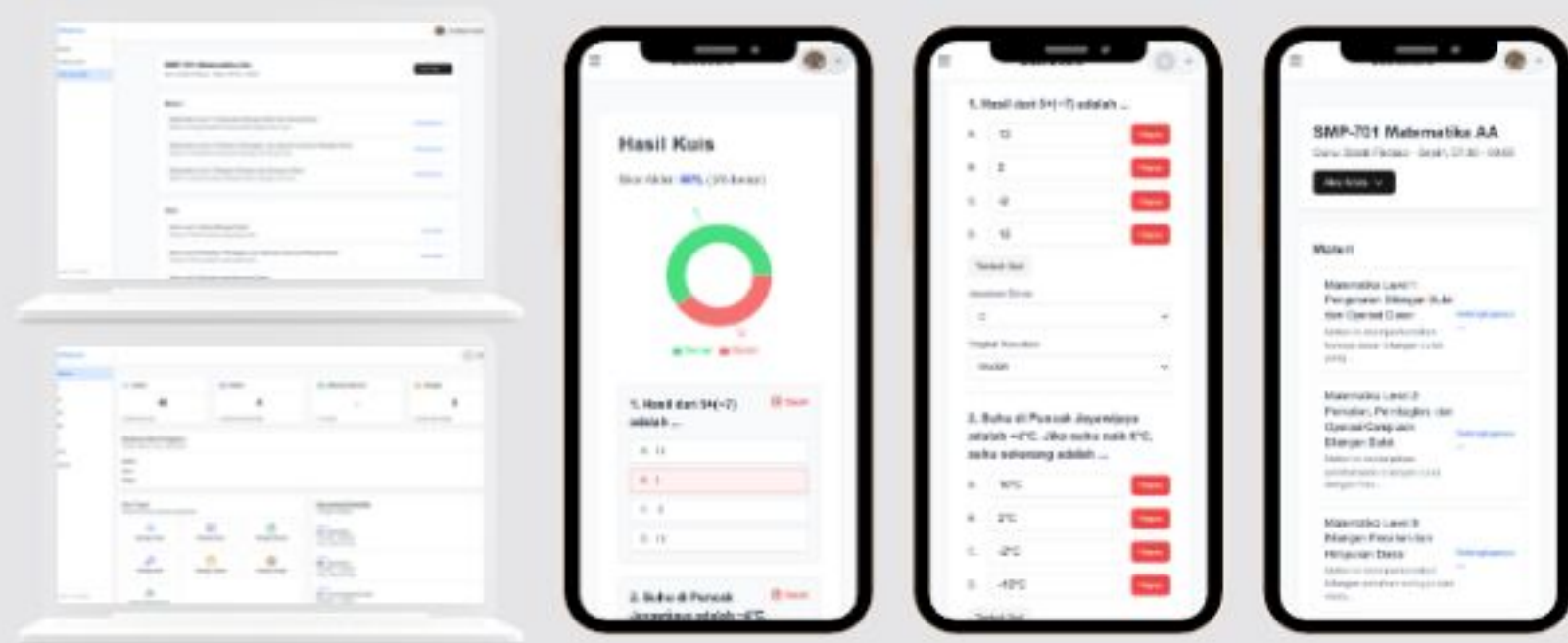
TOOLS



ARTWORK/PROJECT DESCRIPTION

A decoupled web platform that personalizes learning for primary students by adjusting material and quiz difficulty to each learner. The system supports three roles (admin, teacher, student) with structured content management and adaptive assessments.

I designed the Laravel 10 REST API with Sanctum auth, modeled the MySQL schema, containerized services with Docker, and deployed on AWS (EC2 for app servers, RDS or Aurora MySQL for database, S3 for static assets and backups) with CI/CD via GitHub Actions. On the frontend, I built the React app with routing and reusable components using Tailwind, implemented dashboards for each role, adaptive quiz and grading flows, state and API integration for auth, pagination, and error handling, and ensured end-to-end integration with the backend. This project strengthened my skills in secure API design, production-style cloud deployment, and React UI architecture. I learned to translate adaptive learning rules into maintainable services and clear interfaces



SOCIOBLAST WEBSITE

2024

ROLE/POSITION

Full-Stack Web Engineer (Product & Integrations)

TYPE

Class assignment (IFB-409 Entrepreneurship)

PROJECT

<https://github.com/AbbysGud/SocioBlast>

TOOLS



DOCUMENTATION

<https://youtu.be/-2N1swQcivY>

ARTWORK/PROJECT DESCRIPTION

SocioBlast is a web platform that lets small businesses plan, schedule, and publish content to multiple social networks from one dashboard, with simple analytics to guide decisions. It targets the day-to-day pain of manual posting for SMEs like cheese.é.cake, improving consistency and reach through centralized scheduling. I built the product end to end with Laravel and MySQL for secure REST APIs, scheduling, and queue jobs, plus Blade, HTML, CSS, and JavaScript for a clean, task-focused UI. I integrated Instagram Graph API and Meta APIs for authorized publishing, managed OAuth tokens and permissions, and implemented content previews, calendar views, and basic performance summaries. I also served as a presenter and speaker at our university's Entrepreneurship Expo during the Dies Natalis celebration, where I introduced the project, answered live questions from visitors, and produced both a short demo video and a trailer to communicate the product story clearly. This project strengthened my skills in third-party API integrations, secure auth and token handling, cron and queue orchestration, and product thinking for non-technical users. It also sharpened my public speaking, technical storytelling, and light video skills, turning business goals into simple, time-saving flows and consistent campaigns.



2024

ROLE/POSITION

Application Developer (Full-Stack Java, API Integrations)

TYPE

Work assignment at PT Sinergi Transformasi Digital

TOOLS



ARTWORK/PROJECT DESCRIPTION

I contributed end to end on two production websites used for HR and operations. On HRIS, I improved navigation and UX, automated attendance, integrated work-hour data via API, redesigned overtime request flows with attachment handling and click-to-download, enabled resubmission, and introduced a dedicated Attendance sub-menu. I added a WBS sub-menu with Submit, History, and Info, implemented on-click actions and new pages (Submit, History, View), and enhanced the admin dashboard with attendance tables and error-prevention features. On Sakura, I refreshed dashboards and queries, added interactive maps for Indonesia and provinces with on-click actions, built filters and labeled charts, and migrated integrations to the new Qantor API. I implemented workforce data updates from Sakura to Qantor (job title, division, department) when allocations change, scheduled daily sync at 17:00 GMT+7, added Roster and Temporary options to Allocation, and introduced an Audit sub-menu with WBS pages including View WBS.

I worked across planning, front end, and back end: designing features, building pages and interactive UI, creating secure APIs and queries, and collaborating via Git and GitHub. This strengthened teamwork, communication, presentation, analytical, and coding skills, and reinforced my ability to translate business needs into reliable flows.



INTERACTIVE LEARNING MEDIA FOR EARLY EDUCATION

2024

ROLE/POSITION

Interactive Multimedia Developer
(ActionScript & Motion Graphics)

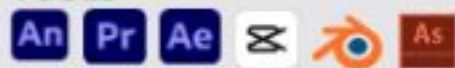
TYPE

class assignment and community
service deployment

PROJECT DEMO

<https://drive.google.com/file/d/1eXqaMe-7ZKpO3qS4ci-hhNef9oqE5bsf/view?usp=sharing>

TOOLS



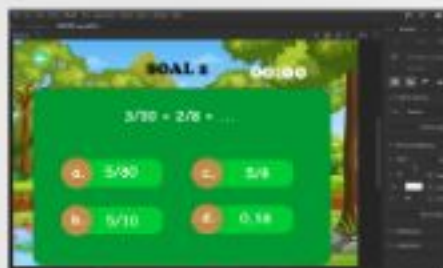
DOCUMENTATION

<https://drive.google.com/file/d/1qjXdui-2lhW5MVJN9TZi8TkjLJ9N-uno/view?usp=sharing>

ARTWORK/PROJECT DESCRIPTION

A paired learning media suite for young students: an interactive Animal Learning Game built in Adobe Animate and a Math Fractions linear video module. The game was piloted at TK Putra I Bandung with live presentation and handover, featuring Home, Material, Quiz, and Profile pages with audio and video assets for each animal. The linear module explains fraction concepts using edited footage, 3D inserts, and motion graphics to keep attention and clarify steps.

I owned the front-end interactive layer and media assembly: importing and organizing visual/audio assets, writing timeline and button ActionScript for navigation, sound and video triggers, and quiz scoring, then testing flows with teachers and students. On the linear video, I handled motion graphics, compositing, 3D asset placement, and final encoding for smooth playback in class.



JAVA SPAREPART PURCHASE APP

2023

ROLE/POSITION

Computer Vision Engineer (Python, YOLOv8 + OCR)

TYPE

Class assignment (IFB-202 Object Oriented Programming)

PROJECT

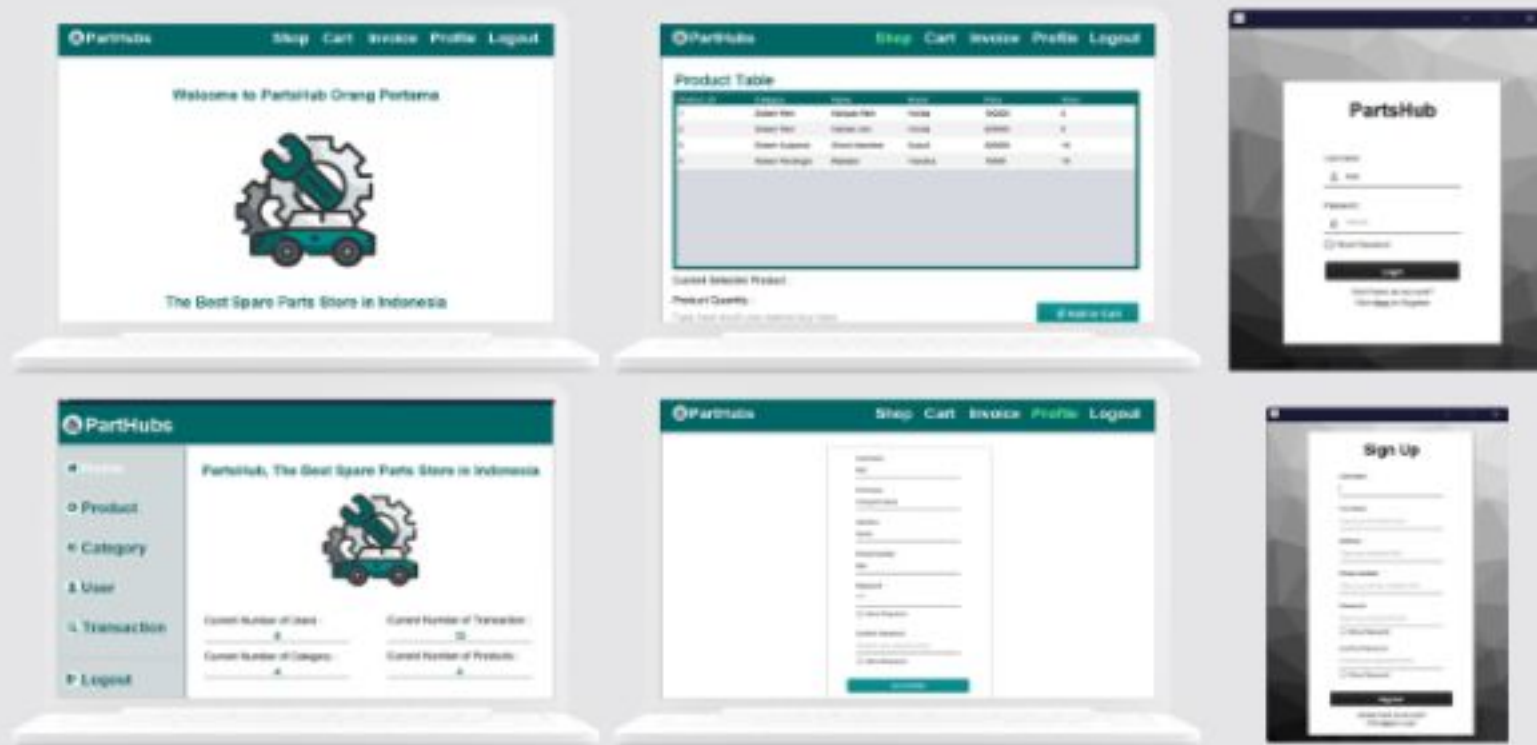
https://docs.google.com/presentation/d/1MN3o5bGtiVTN6a9TeT9GkDqbs_5Pl1rPuaYgnTWuteM/edit?usp=sharing

TOOLS



ARTWORK/PROJECT DESCRIPTION

Partshub is a Java desktop application for buying and selling car spare parts, built with solid OOP design. I implemented CRUD for parts, categories, customers, and suppliers, plus purchase and sales workflows that automatically update inventory and keep transaction histories. The app supports separate flows for sellers and buyers, delivering a simple POS-style experience with accurate stock counts and checkout. Data is persisted in MySQL with a clean schema for products, inventory, and ledgers; queries were optimized for responsive screens. Developed in NetBeans 8.2 using standard Java libraries and MySQL (HeidiSQL), the codebase follows MVC and common OOP patterns for scalability and maintainability.



AUTOMATIC LICENSE PLATE DETECTION AND RECOGNITION

2022-2023

ROLE/POSITION

Computer Vision Engineer (Python, YOLOv8 + OCR)

TYPE

Class assignment (IFB-301 Computer Vision)

PROJECT

https://github.com/AbbysGud/Plate_Detection-YOLOv8

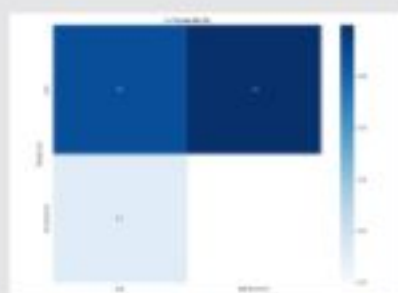
TOOLS



ARTWORK/PROJECT DESCRIPTION

I built an ALPR system for road and parking CCTV to detect plates and read characters for violation analysis and entry or exit logging. The pipeline uses YOLOv8 to localize license plates in video frames, then applies EasyOCR to recognize text, making the solution suitable for traffic monitoring and gate automation. Implemented fully in Python with OpenCV for video input and processing, including grayscale conversion, resizing, sharpening, Otsu thresholding, and morphological opening to improve OCR accuracy. I fine tuned YOLOv8 starting from yolov8n.pt and shipped a PyQt5 GUI (GUI.ui) so operators can load streams, preview detections, and export results.

This project strengthened my skills in model training and evaluation, vision focused preprocessing, GUI engineering in Python, and packaging a computer vision workflow from experiment to a usable desktop tool.





THANK YOU
ARIQ BAGUS SUGIHARTO