Syahrul Fathoni Ahmad

Bachelor of Engineering
Computer Engineering
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Education

Degree	Institute	Current CGPA	Year
S.T., Teknik Komputer	Institut Teknologi Sepuluh Nopember, Surabaya	3.41/4.0	Aug 2025

Skills

- **Full-Stack Development**: Python, Go (Golang), JavaScript, React.js, Node.js, Express.js, Flask, API, SQL, MongoDB, Three.js, HTML/CSS

- **AI & IoT Systems**: PyTorch, TensorRT, YOLO, LSTM, NLP Jetson Nano, ESP32, Arduino, C++, PyQt, RTMP/RTSP Streaming

- **DevOps & Cloud**: Git, Docker, VPS Hosting & Configuration, Vercel, Azure, Nginx, Apache

Work Experiences

- **Freelance** — *2022 - Present*
  Freelancer — Hybrid

  ○ **Retrux-Shelf-Eye (AI Inventory Management System):** — *Aug 2025 - Present*
  Tools: Python, PyQt, PyTorch

    ◇ Developed a real-time shelf stock monitoring application using Python, with a user interface built in **PyQt**.

    ◇ Implemented an advanced object detection model (**RT-DETR**) using **SAHI** for sliced inference.

    ◇ Engineered key software utilities based on client needs, including **multi-camera support** and dynamic directory management.

  ○ **JAREE ITS (Academic Journal Platform):** — *July 2025 - Present*
  Tools: OJS, PHP, MySQL, CSS

    ◇ Orchestrated a seamless, live migration of the OJS platform (v2 to v3), ensuring service continuity for **30k+ users** while upgrading a database of **597k+ records**.

    ◇ Engineered the complete academic peer-review workflow and developed a **custom front-end theme** to enhance user experience.

  ○ **Padel-Clipper (IoT Video Highlight System):** — *Aug 2025*
  Tools: Python, Flask, ESP32, Express.js, PHP

    ◇ Developed the **Flask**-based monitoring dashboard and integrated it with a team-built **Express.js** backend for a real-time video clipping service.

    ◇ Engineered and programmed an **IoT push-button device** using **ESP32** and a custom PCB to trigger highlight captures from IP cameras.

    ◇ Configured and deployed the entire system on a **VPS**, successfully scaling the product to serve nearly **250 active customers**.

  ○ **3D Container Loading Optimizer:** — *July 2025 - Aug 2025*
  Tools: Python, FastAPI, React.js, Three.js

    ◇ Developed a web-based logistics tool to solve the 3D Bin Packing Problem, achieving a container fill rate of **87-89%**.

    ◇ Researched and implemented multiple packing algorithms in Python, including **Genetic Algorithm**, BLF, and CLPTAC method to find the optimal solution.

    ◇ Built the full-stack application with **React.js**, **FastAPI**, and a **Three.js** canvas for 3D visualization.

  ○ **ECG Exhibition Prototype (R&D Collaboration):** — *Oct 2022 - Dec 2022*
  Tools: Python, Raspberry Pi, Biomedical Sensors, Hardware Prototyping

    ◇ Co-developed a functional ECG device for a technical exhibition, validating its performance with a **95-100% accuracy** in real-time heart rate detection.

    ◇ Engineered the end-to-end system, from the **Arduino signal acquisition firmware** to the design and fabrication of the physical, exhibition-ready casing.

- **PT. Telkom Indonesia Regional V** *Feb 2024 - Apr 2024*
  Internship Programmer (ROC Department) Surabaya, Indonesia
  - **Automation & Data Pipeline Development:**
    - ◇ Reduced data retrieval latency by over **80%** by engineering an automated web scraping pipeline with Python and Apache Airflow.
    - ◇ Developed and deployed 2 Optical Character Recognition (OCR) bots to bypass CAPTCHA on internal systems.
  - **System Integration & Reliability:**
    - ◇ Developed a resilient VPN auto-reconnect system (Power Automate) that effectively **eliminated connectivity downtime** and prevented work disruptions.
    - ◇ Created a suite of 7 integrated tools that reduced manual data processing tasks by **40%**.

- **SDN Klampis Ngasem I** *Aug 2022 - Jul 2023*
  Robotics Extracurricular Tutor Surabaya, Indonesia
  - Developed and assembled **Arduino-based Obstacle Avoidance Robots**, preparing *10+ units* for student use and aligning lessons with an existing robotics curriculum to support progressive learning.
  - Mentored students in the **BARONAS competition** by ITS Electrical Engineering, collaborating with a team of three instructors to deliver hands-on sessions, leading the team to reach the *semi-finals*.

Individual Projects

- **Vehicle Speed Estimation System Using Drone with Jetson Nano-based YOLOv8 Method** *Feb 2025 - May 2025*
  Tools: Python, YOLOv8, Jetson-Nano, TensorRT, RTMP [Ω]
  - Developed a real-time vehicle speed estimation system, achieving a peak measurement accuracy of **99.55%** and consistent performance of over 90% at an optimal 20-meter altitude.
  - Trained a superior YOLOv8 model for night-time conditions (mAP50 of **0.93**) and leveraged **TensorRT** to triple inference speed (from **>90ms** to **<35ms**), enabling real-time processing on the Jetson Nano.

- **Padel-Clipper (IoT Video Highlight System with Golang)** *June 2025 - August 2025*
  Tools: Go (Golang), RESTful API, Flask, Python, PostgreSQL [Ω]
  - Developed a RESTful API in Go (Golang), leveraging goroutines and channels to efficiently handle concurrent requests from multiple IoT devices for a real-time video clipping service.

- **BengkelMate: Workshop Business Process Digitalization** *Oct 2024 - Jan 2025*
  Tools: MERN Stack (MongoDB, Express.js, React.js, Node.js) [Ω]
  - As part of a three-person team, developed a web application that digitized the workshop workflow through a role-based system for **Security, Service Advisor, and Spare Parts teams**.
  - Delivered a high-quality user experience, validated by excellent Lighthouse scores in **Performance (96)**, **Best Practices (96)**, and **SEO (92)**, ensuring a fast and reliable tool for daily operations.

Campus Organization Experiences

- **BK MWA-WM ITS** *Jul 2023 - Jul 2024*
  Head of Human Resources Surabaya, Indonesia
  - Directed a **40+ member** HR division, overseeing all training programs and a recruitment pipeline for over **50+** applicants.

- **TEKMEET 2023** *Jan 2023 - Mar 2023*
  Project Officer Surabaya, Indonesia
  - Organized sports tournament for **300+ students** and coordinated charity event serving **50+ people**.

Certifications

- **Intern – PT. Telkom Indonesia Regional V**, Internship-Certificate *Feb 2024 - Apr 2024*
- **Intermediate Machine Learning by Kaggle**, Course *Dec 2023*
- **Feature Engineering by Kaggle**, Course *Dec 2023*
- **Marketing Content with Gapura Digital Google**, Course *Sept 2021*