MUHAMMAD SUHAILI

Computer Engineering · Machine Learning & IoT · Web Development

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Banda Aceh, Nanggroe Aceh Darussalam, Indonesia

PROFESSIONAL SUMMARY

Computer Engineering graduate from Universitas Syiah Kuala with a focus on Machine Learning, IoT, and Web Development. Built and shipped projects spanning embedded systems, deep learning, and web-based applications, including SUNSTONE, a national finalist project at PIMNAS 2025 that led to a Scopus-indexed publication. Also experienced in machine learning research through an internship at DISKOMINFOTIK and in mentoring through a lab assistantship. A fast learner who adapts easily to new tools and challenges, and works well both independently and in a team.

TECHNICAL SKILLS

Programming Languages: Python, JavaScript, MicroPython, SQL

Machine Learning & Data: TensorFlow, Scikit-Learn, Deep Learning, Computer Vision, Image Segmentation, NLP, Web Scraping, Image Processing

IoT & Embedded Systems: ESP32, Arduino, Sensor Integration, Hardware-Software Integration, Actuator Control, MQTT

Web & UI/UX: React.js, HTML, CSS, Figma, Git, Firebase

Soft Skills: Adaptable, Fast Learner, Problem Solving, Cross-Functional Teamwork, Technical Writing, Teamwork

WORK EXPERIENCE

Software Engineering Laboratory Assistant Jan 2025 – Aug 2025
Universitas Syiah Kuala — Banda Aceh, Indonesia

- Guided 25+ undergraduate students through practical Software Engineering laboratory sessions.
- Mentored students on SDLC methodologies, system design, and hands-on programming implementation.
- Evaluated assignments, reviewed code quality, and delivered actionable technical feedback.

Machine Learning Intern Dec 2024 – Jan 2025
Dinas Komunikasi, Informatika dan Statistik Kota Banda Aceh (DISKOMINFOTIK) — Banda Aceh, Indonesia

- Built an end-to-end sentiment analysis pipeline on public opinion for the 2024 Banda Aceh regional election.
- Handled data scraping, text preprocessing, feature extraction, and Naive Bayes classification.
- Translated raw social media data into structured insights for public sentiment monitoring.

EDUCATION

Bachelor of Computer Engineering, GPA 3.62/4.00 Aug 2022 – Aug 2026
Universitas Syiah Kuala — Banda Aceh, Indonesia

High School Diploma, Science Major, Score 89.84/100.00 Jul 2019 – May 2022
SMA Negeri 7 — Banda Aceh, Indonesia

PROJECTS

LandConnect — UI/UX Design for Land Marketplace App 2023
Figma

- Designed mobile app UI/UX for direct land transactions with property listings and search filters.
- Included in-app messaging and agricultural weather context for buyers and sellers.

Rainwater Harvesting System for Children's Swimming Pool 2024
Arduino | Sensors | Automated Actuators

- Built an Arduino-based embedded system with sensor monitoring and automated actuators.
- Filtered and managed rainwater for children's swimming pools.

Automated Irrigation System — Soil Moisture-Based Drip Irrigation 2025

ESP32 | Soil-Moisture & Weather Sensors | Cloud Monitoring

- Built an IoT-based drip irrigation system to automate and optimize water usage for urban green spaces.
- Integrated cloud monitoring for real-time tracking of soil and weather conditions.

SUNSTONE — AI & IoT Early COPD Screening Unit 2025

Python | TensorFlow | ESP32 | Gas Sensors

- Developed the ML pipeline for noninvasive COPD screening via exhaled breath analysis, achieving 88% classification accuracy.
- Integrated ESP32-based gas sensor hardware for real-time breath sample acquisition.

Smart Compost Demonstrator 2025

ESP32 | Environmental Sensors | Mobile Dashboard

- Built an IoT-based composting device with automatic aeration and gas/environmental sensor monitoring.
- Developed a mobile dashboard for real-time tracking to reduce organic waste and support community composting.

Deep Learning Dental Caries Segmentation & Classification 2026

Deep Learning | Image Segmentation

- Developed a deep learning pipeline for dental caries image segmentation and classification.
- Evaluated pre-segmentation filtering techniques to optimize accuracy.

AWARDS & PUBLICATIONS

PIMNAS 38 National Finalist 2025

Represented Universitas Syiah Kuala with SUNSTONE (PKM-KC 2025) at the national finals in Makassar.

Innovation Exhibition Participant, The 15th AIC 2025

Represented the SUNSTONE team at the Innovation Product Exhibition, presenting to international researchers and academics.

Official Copyright (HKI) Holder, Ministry of Law RI 2025

Co-copyright holder for the computer program “SUNSTONE: Screening Unit for Noninvasive Detection Using Exhaled VOCs and IoT” (Reg. No. 000972607).

Co-Author, Scopus Q4 / SINTA 1 Journal Publication 2026

“Enhanced detection of chronic obstructive pulmonary disease via exhaled breath analysis: internet of things and electronic nose system,” IJEECS Vol. 42, No. 3.

Top 180 Innovillage Grant Awardee 2026

National social-project funding by Telkom University & PT Telkom Indonesia for an IoT-based Smart Compost Demonstrator.

ORGANIZATIONAL EXPERIENCE

Staff, Interest and Talent Division Jan 2024 – Dec 2024

Himpunan Mahasiswa Teknik Komputer USK — Banda Aceh, Indonesia

- Organized non-academic student activities, competitions, and internal events.
- Coordinated interest-based communities (sports, arts, hobbies) within the department.

Staff, Creative Media Feb 2025 – May 2026

Seulanga Community — Banda Aceh, Indonesia

- Designed visual branding, social media posts, and promotional graphics for IT learning programs.
- Documented community events and tech-sharing sessions through photo, video, and media coverage.