Sigit Dwi Nugroho

Agricultural Engineering and Biosystems Graduate
sigitdwi2022@gmail.com • +6285385148225 • Wonogiri, Central Java, Indonesia • linkedin.com/in/sigitdwi • euniversee.tech

PROFESSIONAL SUMMARY

Agricultural Engineering and Biosystems graduate from Universitas Padjadjaran (GPA 3.85/4.00) with hands-on experience in engineering design and prototyping, technical drawing (AutoCAD), and end-to-end technology projects. Coordinated teams as a laboratory-assistant coordinator and organizational vice coordinator, supporting 50–100 students in technical subjects. Eager to apply an engineering mindset to real operational challenges, with a strong interest in manufacturing processes, quality, and continuous improvement.

EDUCATION

University: Universitas Padjadjaran
Degree: Bachelor of Engineering in Agricultural Engineering and Biosystems
Study Period: Aug 2022 – Oct 2026
GPA: 3.85 / 4.00

UNDERGRADUATE THESIS

Thesis Title: Non-Destructive Avocado Ripeness Detection Using Laser-Light Backscattering Imaging (LLBI)

Project Description:

- Designed and developed a portable avocado-ripeness detection prototype integrating mechanical design, electronics, embedded computing, and machine learning.
- Designed the enclosure using AutoCAD and Autodesk Inventor, developed a custom interface PCB using KiCad, and integrated a Raspberry Pi 4B, camera module, and laser-based imaging system.
- Evaluated SVM and MobileNetV2-based CNN classifiers using data collected from 110 avocados over 14 days. The best-performing configuration, an 850 nm SVM model, achieved 87.5% on a 16-fruit external holdout set (AUC 0.900), with an end-to-end three-point scan taking approximately 1.98 seconds on the Raspberry Pi 4B.

RELEVANT COURSEWORK

Relevant Coursework: Agricultural Machinery and Equipment, Unit Operations, Postharvest Technology, Control Systems and Automation, Engineering Economics.

PROFESSIONAL EXPERIENCE

Freelance Web Developer
2026 – Present

Educational Games Partnership (Self-Employed), Remote

- Develops browser-based educational games for primary-school learners in an ongoing partnership (27 single-file HTML games deployed on Vercel), owning programming, technical implementation, debugging, and revisions.
- Works iteratively with a marketing partner who brings teacher-oriented feedback, adapting games to requested learning activities until the result is accepted.
- Ships products with regular users who request updates, including team-versus-team classroom games, a number-bridge game, and TKA-style test-preparation pages.

Field Supervisor
Oct 2026 – Nov 2026

ICARE Mango Processing Project (Grant-Funded), Indramayu, Indonesia

- Monitored daily renovation and construction progress of a lecturer-led, ICARE (Ministry of Agriculture and World Bank) grant-funded mango-processing facility, keeping work on schedule and within quality standards.
- Contributed to facility layouts, production-flow planning, preliminary sketches, and CAD-based technical drawings.
- Prepared and reviewed project cost estimates (RAB/RAP) to keep grant-fund allocation within the planned budget.
- Supported production-layout planning for dried mango, mango sambal, and mango fruit leather, meeting PIRT and halal requirements with only minor revisions during BPOM-related review.

Software Developer (Intern)
Jul 2025 – Sep 2025

Habibi Garden, Bandung, Indonesia

- Developed a full-stack, real-time computer-vision application from concept to prototype to classify tomato ripeness automatically via a smartphone camera.
- Trained and fine-tuned a YOLOv8n model on data collected from public sources and annotated in CVAT, achieving 97.3% mAP50 and 73.2% mAP50-95 on the validation set.
- Built a Python/FastAPI backend serving real-time inference over WebSockets, with a responsive React (Next.js)/TypeScript interface for live camera streaming and bounding-box visualization.
- Researched and benchmarked model architectures, pivoting from heavier R-CNN/RetinaNet designs to YOLOv8 to meet real-time performance requirements on portable devices.

Assistant Lecturer of Thermodynamics
Sep 2024 – Dec 2024

Universitas Padjadjaran, Jatinangor, Indonesia

- Facilitated thermodynamics courses for ±100 undergraduate students, covering the laws of thermodynamics, entropy, steam and gas power systems, refrigeration, gas mixtures, and psychrometrics.
- Designed instructional materials and supplementary practice problems, and provided individualized guidance to strengthen students' analytical skills in thermal-system analysis.

Laboratory Assistant Coordinator (Computer Programming) Mar 2024 – Jul 2024

Universitas Padjadjaran, Jatinangor, Indonesia

- Coordinated a team of teaching assistants while directly instructing ±50 students in Python fundamentals, Flask, Tkinter GUI, MySQL databases, and CRUD operations.
- Developed practical exercises and implemented peer-programming sessions to bridge theoretical knowledge with real-world programming applications.

LEADERSHIP & ORGANIZATIONAL EXPERIENCE

Vice Coordinator Apr 2025 – Jun 2025

Imapres Wonogiri, Wonogiri, Indonesia

- Coordinated 25+ members to keep organizational programs on track, provided recommendations to the Coordinator, and led the UMKM website project from concept to completion.
- Engaged local small-business sellers directly to gather their needs and translate them into practical features of the KAWULA e-commerce platform.

Social Media Staff Apr 2024 – Jun 2025

Imapres Wonogiri, Wonogiri, Indonesia

- Managed the organizational website as a WordPress administrator, ensuring consistent content updates and reliable site performance.
- Designed Instagram content and promotional materials using Figma, and developed digital certificates for district activities and events.

SELECTED PROJECTS

Capstone: Automated Ultrasonic Bird Deterrent for Rice Fields

Raspberry Pi · YOLO · Ultrasonic · Solar (team of 3)

Designed and built an automated bird-deterrent prototype in a three-person capstone team, owning the programming, electronics, and prototype design: a Raspberry Pi with camera-based YOLO detection triggered an ultrasonic speaker, supported by an LDR light sensor and solar power for portable field operation.

Undergraduate Thesis: Non-Destructive Avocado Ripeness Detection Prototype

LLBI · Raspberry Pi 4B · AutoCAD/Inventor · KiCad

Designed and built a portable LLBI prototype end to end: AutoCAD drawings evolved into an Inventor assembly with 3D-printed chambers, a custom KiCad interface board (buttons, laser driver, LCD), and a Raspberry Pi 4B running SVM and MobileNetV2 CNN classifiers on a 110-fruit, two-wavelength (650/850 nm) image dataset. The deployed SVM reached 87.5% on an external holdout, and the kiosk UI returns ripeness class and a shelf-life estimate in about 2 seconds per fruit.

3D Lathe Machine: Technical Drawing Final Project

AutoCAD

Designed and modeled a 3D lathe machine in AutoCAD, producing technical drawings with component dimensions and tolerancing for a potential manufacturing application.

Grass-Cutter Modification for Soil Tillage

Agricultural Workshop (Perbengkelan Pertanian)

Modified a grass-cutting machine for soil tillage: reworked the blade component and evaluated metal shapes and configurations suited to the soil-working function.

SKILLS

CAD / AutoCAD, Technical Drawing, Python, SQL, MySQL, Microsoft Excel, Data Analysis, JavaScript, FastAPI, React & Next.js, Computer Vision (YOLOv8, CVAT), Applied Research, Problem Solving, Technical Communication & Instruction

LANGUAGES

Bahasa Indonesia (Native) • English (TOEFL ITP 477)

CERTIFICATIONS

- Alibaba Cloud Certified Developer (Alibaba Cloud, Jan 2024)
- Python (Kaggle, Aug 2024)
- Intro to Software Engineering (RevoU, Feb 2024)
- Belajar Dasar Manajemen Proyek (Dicoding Indonesia, Aug 2023)

ACHIEVEMENTS

- Pemuda Berprestasi Kabupaten Wonogiri (2023, 2024 & 2025)