

GIOVAN CHRISTOFFEL SIHOMBING

Software Engineering and AI

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Professional Summary

Computer Engineering graduate with experience in applied AI, iOS/macOS development, and backend engineering. Builds data preparation and model-training pipelines, integrates AI into applications, and coordinates technical delivery across research and team projects.

Work Experience

Assistant Researcher (Part-time)

Monash University, Indonesia Campus

Tangerang, Indonesia

May 2026 – Present

- Develop Python and Google Cloud Storage workflows for chest X-ray dataset curation, DICOM preprocessing, image-report pairing, and multi-source metadata harmonization.
- Contribute to JAX/Flax NNX baseline and domain-shift experiments across TBX11K and CXR-RAIT; conduct a Google Cloud TPU reconstruction pilot using a 470-image cohort with fixed train/validation/test splits.
- Build inference tooling for a distilled CheXAgent vision-language model and integrate it into TB-Xdar via Replicate/Cog, supporting DICOM inputs and clinician-reviewed reporting workflows.

AI Engineer Intern

Tripleize Co., Ltd.

Minato-ku, Japan

Feb 2026

- Investigated mathematical image-analysis and segmentation-model approaches for assessing food plating quality, including positioning and arrangement, without external AI APIs or large language models.
- Documented explored approaches, implementation observations, and limitations in an internship report.

Laboratory Assistant / Laboratory Coordinator

Digital Laboratorium, Universitas Indonesia

Depok, Indonesia

Aug 2023 – Jan 2026

- Coordinated approximately 12 laboratory assistants and departmental administration for practical courses, including equipment procurement, room bookings, and assistant compensation.
- Developed and deployed a Dockerized Node.js e-library that remains in use by the laboratory; administered supporting Proxmox virtual servers.
- Previously delivered hands-on practical sessions across six subjects covering programming, digital systems, and IoT, including C, VHDL, Assembly, and ESP32/FreeRTOS.

Public Relations Intern (Web Developer)

Faculty of Dentistry, Universitas Indonesia

Depok, Indonesia

May 2025 – Jan 2026

- Modernized the faculty website through UI redesign, backend development, and content migration to WordPress.
- Created a Docker-based staging environment and configured a web application firewall and multi-factor authentication to support controlled testing and strengthen access protection.

Data Labeler Intern

PT Cliste Rekayasa Indonesia

Jakarta, Indonesia

Oct 2025 – Dec 2025

- Annotated assets in complex Piping and Instrumentation Diagrams (P&ID) and prepared the resulting dataset for an object detection system supporting automated asset inventory.

Public Relations Intern (Web Developer)

Universitas Indonesia

Depok, Indonesia

Jul 2024 – Dec 2024

- Developed, launched, and maintained event websites and microsites for university public-relations activities.
- Built websites for the 2024 Graduation Ceremony and UI International Education Expo, organizing event information for participants and visitors.

Research and Apple-Platform Projects

Federated Learning for Chest X-Ray Classification

Undergraduate Thesis / Individual Project

Aug 2025 – May 2026

- Independently developed a federated learning experiment pipeline for multi-label chest X-ray classification, covering data preparation, framework comparison, deployment, and evaluation.
- Adapted X-Raydar-CV for 38 outputs (37 findings and a meta-class), freezing the visual backbone and fine-tuning classifier heads; prepared model-assisted labels requiring expert clinical validation.
- Compared five frameworks in simulation; deployed only FedBioMed across five physical devices for 30 runs spanning FedAvg/FedProx, three resolutions, and five seeds.
- Built orchestration and researcher/operator dashboards for setup, registration, and monitoring; completed five rounds per run, totaling 750 successful client-round responses. The study does not establish patient-independent generalization or clinical readiness.

AniMagic

iOS Developer / AI and Application Systems

Jul 2026

- Built the sketch classifier and Core ML integration for a SwiftUI/PencilKit-to-AR team prototype; handled data preparation, model selection, training, and evaluation.
- Prepared 840,000 training examples from Google Quick, Draw! across 49 classes: 48 animal species and one aggregated non-animal class.
- Reached 85.14% overall top-1 across 49 classes including *other* on held-out Quick Draw data (24,500 examples per validation/test set), not PencilKit-user accuracy.

Lawtionary

macOS Developer / AI and Application Systems

Aug 2026 – Sep 2026

- Built local-first legal-draft review and terminology lookup in Swift/SwiftUI/AppKit; prepared the September 2026 corpus (2,982 term groups; 2,589 selected concepts).
- Integrated BM25/multilingual-E5 retrieval and local Qwen3.5 4B Base/MLX for candidate review, with source checks, output validation, fallback, and user-approved edits.
- Tested with students, corporate lawyers, and government legal personnel; prioritized Dictionary updates from student feedback and available development time.

Worthly

iOS Developer

Jun 2026

- Built a local-first SwiftUI personal-finance prototype covering assets, liabilities, investments, and transactions, with reusable interface components.
- Implemented local JSON persistence, a dummy-data mode, and a planning projection engine with unit tests to support development and demonstration of the financial workflows.

HollaDawg

iOS Developer

Apr 2026

- Built a SwiftUI prototype for discovering and booking language-exchange partners, including language filtering, matched profiles, and appointment scheduling.
- Implemented upcoming-session views, reusable interface components, and an AVFoundation-based video-call interface within the prototype.

Backend and Embedded-System Projects

eVoting Pemira FTUI

Lead Backend Engineer

2024

- Developed and deployed the Node.js, Express.js, and PostgreSQL backend for FTUI's 2024 student election, supporting more than 2,700 voters during its initial use.
- Contributed to an election platform that recorded more than 40,000 website accesses for candidate information and remains in use.
- Allocated backend responsibilities according to system-component confidentiality; implemented Redis caching, JWT authentication, Winston logging, and deployment with Docker Compose.

School Meal Monitoring System (MBG)

Full-Stack Engineer

Feb 2025 – Dec 2025

- Developed a cross-platform capstone prototype for school-meal operations, covering role-based dashboards, NFC attendance, student/catering management, feedback, and emergency reporting.
- Implemented backend REST APIs with FastAPI and PostgreSQL, together with authentication flows using JWT and two-factor authentication.
- Built offline-capable client and central-edge synchronization workflows using Expo/React Native, Tauri, and Docker.

CaptureMe

Project Lead and IoT Engineer

Prototype

- Led development of an ESP32-CAM/ESP32-S3 surveillance prototype for person detection and notifications.

CPU Design in VHDL

CPU Design and FPGA Project

Course Project

- Designed a CPU behavioral model in VHDL, implementing the arithmetic logic unit, register file, and instruction decoder.
- Used ModelSim to simulate the design and Xilinx Vivado for synthesis as part of the FPGA coursework project.

MightyShield

Backend Engineer

Software Package

- Developed a TypeScript middleware package for Node.js applications, implementing input filtering for XSS and SQL-injection patterns together with request rate limiting.

Leadership Experience

Vice President

EXERCISE FTUI, Universitas Indonesia

Depok, Indonesia

Jan 2024 – Jan 2025

- Coordinated the planning and delivery of six technical projects and seven workshops spanning software, hardware, and design to support members' technical development.
- Organized an industry visit with XL Axiata's IoT division, coordinating company communication and event arrangements to introduce members to enterprise networking and IoT.

Staff of Software Projects

EXERCISE FTUI, Universitas Indonesia

Depok, Indonesia

Jan 2023 – Jan 2024

- Translated Figma designs into a mobile interface for an elderly-monitoring smartwatch application, implementing layouts with Kotlin and XML in Android Studio.
- Developed REST APIs for a laboratory digitization project and handled deployment, containerizing the application with Docker and exposing the service through Cloudflare Tunnel.

Education and Training

Bachelor of Engineering in Computer Engineering

Universitas Indonesia

Depok, Indonesia

Aug 2022 – Aug 2026

- GPA: 3.67/4.00. Received the AEON 1% Club Scholarship in 2024 and 2025.
- Elected representative of the Computer Engineering Class of 2022, serving as a liaison between students and faculty.

Apple Developer Academy Learner

Apple Developer Academy @ UC

Jakarta, Indonesia

Feb 2026 – Present

- Participate in a ten-month Apple-platform development program covering opportunity exploration, user research, interface design, and implementation; currently working on a fifth team project.
- Conduct user interviews and research, create wireframes and high-fidelity designs, and contribute to application development and prototype testing.
- Explore alternative interface designs in response to mentor feedback and help prioritize improvements based on user needs and available development time.
- Help teams maintain focused discussions, align on next steps, and work toward agreed project timelines.

TWINCLE Exchange Program

Chiba University

Chiba, Japan

Dec 2025 – Feb 2026

- Received JASSO scholarship support for an academic exchange at Chiba University and collaborated with students from Southeast Asia and Taiwan.
- Prepared and delivered a group presentation on local food waste, discussing regional challenges and community-based approaches with international peers.

Japanese Language Program for Professionals

Fast Offer, in collaboration with FIB UI

Depok, Indonesia

Jul 2024 – Nov 2025

- Completed intensive Japanese language and cultural training designed to prepare participants for professional environments in Japan.
- Passed JLPT N3 and progressed to a native-speaker-led course based on performance.

Technical Skills

- **Programming:** Python, Swift, JavaScript, TypeScript, SQL, C/C++, Kotlin, VHDL.
- **AI/ML:** Data preparation, model training and evaluation, computer vision, federated learning, PyTorch, TensorFlow, scikit-learn, Core ML, FedBioMed, RAG, MLX.
- **Apple Platforms:** SwiftUI, AppKit, Xcode, Vision, PencilKit, ARKit, RealityKit, SwiftData, XCTest.
- **Backend and Data:** Node.js, Express.js, FastAPI, REST APIs, PostgreSQL, Redis, React Native.
- **Infrastructure and Tools:** Docker, Linux, Git, GCP, Proxmox, Cloudflare, Figma, WordPress.

Certifications

- [Certified Ethical Hacker \(CEH\)](#) – EC-Council, 2024.

Professional Development

- [AI for Medicine and Generative Adversarial Networks](#) specializations – DeepLearning.AI / Coursera, 2026.
- [Deep Learning and Natural Language Processing](#) specializations – DeepLearning.AI / Coursera, 2025.
- [IBM Applied DevOps Engineering](#) – IBM / Coursera, 2025.
- [Google AI Specialization](#) – Google / Coursera, 2026.
- [Red Hat Academy – Program Learner](#): completed Aug 2024 (course attendance; credential expired Aug 2025).
- [Cisco Networking Academy – Course Completion, 2024](#): [CCNA: Introduction to Networks](#); [CCNA: Switching, Routing, and Wireless Essentials](#); [CCNA: Enterprise Networking, Security, and Automation](#).

Languages

Indonesian (Native) | English (Professional) | Japanese (Conversational; JLPT N3, 2025)