

FIDEL CRISTOPHER

AI & Machine Learning Engineer

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PROFESSIONAL SUMMARY

Computer Science undergraduate at BINUS University specializing in Artificial Intelligence, Deep Learning, and Computer Vision. Experienced in developing real-time edge AI models (YOLOv8, 1D-CNN), speech recognition pipelines, and full-stack solutions with FastAPI and Next.js. Award-winning innovator and active competitive programmer seeking a high-impact AI/Software Engineering internship.

EDUCATION

Bina Nusantara University (BINUS University) | Malang / Jakarta, Indonesia **Bachelor of Computer Science (Teknik Informatika)** | (2024 – Present)

- Relevant Coursework: Deep Learning, Computer Vision, Natural Language Processing, Speech Recognition, Computational Biology, Data Structures & Algorithms, Object-Oriented Programming, Relational Databases.

SMA Kristen Nasional Anglo | Indonesia **High School Diploma – Natural Sciences (MIPA)** (2022 – 2024)

- Graduated with strong foundations in advanced mathematics, logical reasoning, and active student organization participation.

TECHNICAL SKILLS

- **Machine Learning & Deep Learning:** PyTorch, TensorFlow, Keras, Scikit-Learn, 1D/2D CNN, YOLOv8-seg, Seq2Seq (Encoder-Decoder), MLP, Transfer Learning, Model Optimization
- **Computer Vision & Audio DSP:** OpenCV, MediaPipe Pose Estimation, SIFT, ORB, KAZE Keypoints, Haar Cascades, BoVW, Librosa, STFT, FFT, Waveform Augmentation
- **Natural Language Processing:** NLTK, Word2Vec, GloVe Embeddings, POS Tagging, NER, Cosine Similarity, Tokenization, Lemmatization, Emotion Classification
- **Programming Languages:** Python, C++ (C++23), TypeScript, JavaScript, SQL (PostgreSQL, MySQL), PHP
- **Web & Systems Development:** FastAPI, Next.js, React, Tailwind CSS, Laravel, WebSockets / Socket IPC, RESTful APIs
- **Tools & DevOps:** Docker, Git / GitHub, Jupyter Notebook, Linux / WSL, VS Code, Figma (UI/UX)

FEATURED PROJECTS

AMORA – AI-Powered Pregnancy Fitness & Posture Safety Mobile App | Python, MediaPipe, 1D-CNN, LLMs, Healthcare Tech **Lead AI & Computer Vision Developer** (2025 – 2026)

- Architected a real-time computer vision and pose tracking pipeline using MediaPipe to capture maternal movement kinematics through smartphone camera feeds, providing instant posture correction.
- Engineered a 1D-Convolutional Neural Network (1D-CNN) trained on temporal skeletal coordinate sequences to classify safe vs. hazardous maternal movement trajectories according to ACOG and Mayo Clinic clinical standards.
- Integrated Large Language Model (LLM) agents to generate reassuring, personalized coaching instructions based on detected joint-angle deviations and trimester fitness constraints.
- Won 2nd Place Winner at the National Beyond Business Plan Competition (Universitas Ciputra Surabaya, May 2025).

VoiceDeck – Hands-Free Real-Time Speech Pitching Assistant | Python, Speech Recognition, Real-Time Audio DSP, Librosa, PyQt6 **Core Developer & Audio DSP Engineer** (2026)

- Engineered an ultra-low latency (<100ms) on-device speech recognition presentation tool enabling hands-free slide navigation, screen pointer control, and metric highlighting via natural voice triggers.
- Implemented a local acoustic digital signal processing (DSP) pipeline with Short-Time Fourier Transform (STFT) and acoustic feature filters, enabling 100% offline, privacy-first execution without cloud latency.
- Built a cross-platform desktop overlay interface using PyQt6, providing seamless background execution across Microsoft PowerPoint, Apple Keynote, and Google Slides.

RailSense – Intelligent Railway Interlocking & Track Safety System | Computer Vision, YOLOv8-seg, PyTorch, FastAPI, Next.js **Computer Vision & Backend Engineer** (2026)

- Developed an automated railway crossing surveillance and traffic light interlocking system to prevent vehicles and pedestrians from getting trapped on tracks during approaching train signals.
- Trained and fine-tuned a YOLOv8-seg (instance segmentation) model on railway intersection footage, accurately isolating track zones, crossing barriers, vehicles, and pedestrians under adverse weather conditions.
- Engineered a high-throughput FastAPI inference server communicating real-time spatial breach detections to an operations monitoring dashboard built with Next.js, triggering automated warning alarms.

Gemini Desktop Bridge – Agent Skill & Real-Time IPC Protocol | Python, Socket / IPC, Automation Protocol, Desktop API Systems & Agent Developer (2026)

- Architected a bidirectional Inter-Process Communication (IPC) bridge connecting terminal-based AI coding agents (Gemini LLM) directly to active desktop software environments (such as Blender 3D).
- Designed a lightweight TCP socket communication layer transforming natural language coding instructions into programmatic 3D scene creation, procedural modeling, and asset manipulation workflows.

EMPOREX – Digital Agricultural Export & B2B Ecosystem | Platform Architecture, Supply Chain Systems, E-Commerce Systems Designer & Co-Creator (2025)

- Designed the digital architecture for an international B2B agricultural export platform connecting Indonesian traditional herbal and spice (empon-empon) smallholder farmers directly to global buyers.
- Structured digital supply chain verification, transparent pricing mechanisms, and export compliance workflows to eliminate intermediaries and maximize farmer revenue.
- Awarded 1st Place Winner at National Business Plan Competition 6 (Universitas Akprind Indonesia, June 2025) and 2nd Place at BINUS Festival Business Plan Competition (May 2025).

Artisan Sparkling Matcha – Interactive 3D Web Simulation | WebGL, JavaScript, Google <model-viewer>, Interactive UI/UX Frontend & 3D Web Developer (2026)

- Built a high-performance WebGL interactive landing page featuring 3D product simulation, cursor-tilt depth physics, and modular interactive views (Menu, 3D Layer Pinch, Crafting Lab).
- Optimized 3D asset geometry, materials, and canvas rendering pipelines to ensure consistent 60 FPS performance across mobile devices and interactive kiosk displays.

HONORS & AWARDS

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- **1st Place Winner – National Business Plan Competition 6 (Service Category)** – Universitas Akprind Indonesia & ENTRE.IDN (June 2025)
 - **2nd Place Winner – National Competition, Beyond Business Plan Event** – Universitas Ciputra Surabaya (May 2025)
 - **2nd Place Winner – Business Plan Competition, Binus Festival** – BINUS University (May 2025)