Gading Aditya Perdana

+62 811920059 | gadingadityaperdana@gmail.com | linkedin.com/in/gadingadityaperdana | gadingadityap.vercel.app
Central Jakarta, Indonesia

Summary

Driven AI Research Engineer with hands-on expertise in deep learning, computer vision and natural language processing. Published author on "CALM: Calibrated Adaptive Learning via Mutual-Ensemble Fusion," achieving 97%+ accuracy and state-of-the-art calibration on CIFAR-10 and STL-10 benchmarks. Proven track record in end-to-end research, from adaptive curriculum protocols and heterogeneous feature integration to model explainability (Grad-CAM, SHAP) and uncertainty calibration. Rapidly upskills across the full AI stack (CNNs, Transformers, NLP pipelines) and front-end deployment (React, Flask), delivering production-ready solutions under tight timelines. Passionate about pushing the boundaries of uncertainty-aware vision models and translating novel research into real-world impact.

Education

Binus University | GPA: 3.31/4.00 — Jakarta, Indonesia
Bachelor of Science in Computer Science, Specialization in Intelligence Systems — *Aug. 2023 – Feb 2027*

Experience

Undergraduate Research Assistant — Jan 2025 – Present
Binus University — *Anggrek Campus, Jakarta*

- Appointed as a research member under the Penelitian Pemula Binus scheme for the project "Development of an Automatic Diagnosis System Using Deep Learning for Bone Fracture Detection," supervised by Maulin Nasari, S.T., M.Kom.
- Prepared and curated the research dataset, ensuring high data quality and consistency for model training.
- Performed extensive data cleaning and exploratory analysis on the X-ray dataset, uncovering severe class imbalance and advising the acquisition of a more balanced dataset for reliable model training.
- Executed comparative experiments across Vision Transformer and CNN architectures with various ensemble strategies (bagging, boosting, stacking, majority voting), then synthesized and reported detailed findings to the research leader to inform next steps.

Application Developer Intern — Jul. 2024 – Aug. 2024
Otoritas Jasa Keuangan — *Jakarta, Indonesia*

- Implemented new features in a banking supervision application, rigorously adhering to regulatory compliance and performance benchmarks.
- Partnered with senior developers to lead code reviews, debug critical issues, and uphold production system reliability.
- Optimized and maintained PostgreSQL data tables, improving query efficiency and data integrity.
- Drafted step-by-step user manuals and technical documentation to accelerate onboarding and reduce support tickets.
- Actively contributed to sprint planning and architectural discussions with recommendations for scalability and UX enhancements.
- Compiled a comprehensive internship report for OJK stakeholders, detailing key contributions and lessons learned.

Projects & Research

CALM: Calibrated Adaptive Learning via Mutual-Ensemble Fusion — Feb. 2025 – May 2025

- Published pre-print in Procedia Computer Science (ICCSCI 2025) presenting CALM, a unified framework integrating ensemble distillation, mutual learning, and calibration losses for vision models.
- Proposed Adaptive Curriculum Protocol (ACP) to schedule learning objectives dynamically, and Heterogeneous Feature Integration (HFI) to fuse intermediate features from diverse teacher networks.
- On CIFAR-10, CALM achieved 97.16% top-1 accuracy and reduced Expected Calibration Error by up to 20%.
- On STL-10, CALM demonstrated strong generalization under minimal adaptation and achieved state-of-the-art accuracy (98.20%) and macro-F1 (0.9820) after post fine-tuning with recalibration.

Diabetic Retinopathy Detection Using CNN — Sep. 2024 – Nov. 2024

- Engineered a desktop tool to analyze retinal scans, outputting disease-grade predictions with integrated Grad-CAM heatmaps for interpretability.

- Achieved 88% accuracy on the APTOS dataset by fine-tuning InceptionV3 with data augmentation and class-balanced sampling.

Facial Recognition for Airport Security Nov. 2024 – Dec. 2024

- Designed a real-time facial recognition pipeline using OpenCV and PyTorch, aligning faces and matching embeddings against a secure ID database.

StyleTailor: Customizable T-Shirt Design Website Feb. 2024 – May. 2024

- Built a responsive web app enabling users to design custom T-shirts with canvas tools, CSS transitions, and print-ready export functionality.
- Integrated the Polotno API for seamless design rendering and optimized asset loading to improve UX.

Activities

Chairperson & Treasurer, Bagi Dunia (NGO) | Jakarta, Indonesia Feb. 2024 – Present

- Led financial operations and fundraising, raising Rp13.5M+ (±USD 800), exceeding targets by 25% through crowdfunding and securing seven new sponsorships.
- Recruited, trained, and managed 30+ volunteers; streamlined onboarding with SOPs, reducing setup overhead by 25%.
- Directed logistics for multi-day food drives across five sites, delivering 1,500+ aid packages to 600+ beneficiaries.
- Developed a live dashboard for real-time monitoring of donations, volunteer engagement, and aid distribution metrics.
- Expanded NGO network by four partner organizations and boosted community engagement by 40% through targeted workshops.

Peer Tutor & Lecture Series Organizer Nov. 2023 – Present

Independent *Jakarta, Indonesia*

- Provided personalized tutoring in Statistics, Discrete Mathematics, and Linear Algebra to 15–20 peers weekly.
- Designed and delivered paid bootcamps on Algorithms, Statistics, and Linear Algebra, and free Computational Physics lectures to 150+ students via Discord.
- Managed full-cycle video production (scripting, recording, editing) to create high-quality educational content.

Certifications

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- FreeCodeCamp (2024–2025): Scientific Computing with Python; Responsive Web Design; JavaScript Algorithms & Data Structures (Legacy & Modern); Data Analysis with Python; Machine Learning with Python; College Algebra with Python.
- Kaggle Learn (2025): Computer Vision; Intro to ML; Intermediate ML; ML Explainability; Intro to Deep Learning; Data Visualization; Data Cleaning; Intro to AI Ethics.

Technical Skills

Languages: Python (Proficient), C++, JavaScript, Java, SQL
Deep Learning & Research: Adaptive Curriculum Protocols, Ensemble, Mutual Learning, Calibration Loss
Computer Vision & NLP: EfficientNet, ResNet, Vision Transformers, BERT, Grad-CAM, SHAP
Machine Learning: NumPy, Pandas, SciPy, Scikit-learn, Matplotlib, Plotly, OpenCV, XGBoost, LightGBM
Frameworks & Libraries: TensorFlow, PyTorch, Keras, FastAPI, Flask
Web Development: HTML, CSS, React, RESTful API Design
Developer Tools: Git, GitHub, Docker, MLflow, Weights & Biases, CI/CD Pipelines
Data Science & Analytics: Data Cleaning & EDA, Statistical Analysis, Imbalanced-class Sampling, A/B Testing
Concepts: Data Structures & Algorithms, OOP, Agile/Scrum Methodologies
Soft Skills: Rapid Learning, Cross-functional Collaboration, Technical Writing & Documentation

Languages

English (Native)

Indonesian (Native)

German (Basic conversational)

Spanish (Basic conversational)