Richmond Ampah-Mensah

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EDUCATION

Universitas Muhammadiyah Semarang (UNIMUS), Semarang, Indonesia
Bachelor of Informatics 2023 – Expected March 2027
GPA: 3.83/4.00 **Scholarship:** University Scholarship
Relevant Coursework: Artificial Intelligence, Computer Vision, Digital Image Processing, Linear Algebra, Data Structures, Data and Information Security, Parallel Computing, Cloud Computing.

RESEARCH EXPERIENCE

Universitas Muhammadiyah Semarang, Semarang, Indonesia
Undergraduate Researcher, Independent and Faculty-Mentored Research Jun 2026–Present
Faculty Mentors (across selected studies): Dr. Muhammad Munsarif; Dr. Muhammad Sam'an; Prof. Dr. Edy Winarno.

MobileFaceLoRA: Parameter-Efficient Face Recognition Jun 2026
- Developed a face-verification pipeline adapting CLIP ViT-B/16 with LoRA and ArcFace, with teacher–student distillation and deployment-oriented evaluation.
- Evaluated verification across LFW, AgeDB-30, CALFW and CPLFW benchmarks; investigated model export and inference constraints for mobile devices.

Patient-Level Breast Ultrasound Classification Jul 2026
- Designed external validation comparing radiomics features, frozen DINOv2 representations and probability-level fusion using patient-grouped evaluation.
- Examined discrimination, calibration and reliability while controlling patient-level leakage and separating development from held-out evaluation.

Document Visual Question Answering: Evidence Retrieval Jul–Aug 2026
- Implemented controlled comparisons of OCR-text, visual and hybrid retrieval, including BM25, dense retrieval and ColQwen, on DocVQA and MP-DocVQA.
- Separated evidence-retrieval failures from answer-generation errors through recall-based evaluation and cross-dataset analysis.

Fail-Closed Auditing of Machine Learning Compression Jul–Aug 2026
- Developed a pre-specified audit procedure comparing reference models with ONNX, FP32, FP16 and INT8 execution under reliability and drift checks.
- Investigated a negative DINOv2 runtime case to document where compression or deployment evidence failed the defined acceptance gates.

Additional Investigations in Trustworthy Medical AI Sep 2026–Present
- Investigated radiomics and vision-transformer behavior under acquisition shift, and disease-detection versus human-review decisions under fixed diabetic-retinopathy referral policies.
- Ongoing segmentation work explores LoRA-based teacher adaptation, distillation to a compact U-Net student and ONNX INT8 quality checks.

TEACHING AND LEADERSHIP EXPERIENCE

Universitas Muhammadiyah Semarang, Semarang, Indonesia
Laboratory Assistant, Mobile Development and Machine Learning Sep 2026–Present
- Support students during practical laboratory sessions, explain programming exercises and troubleshoot implementation problems.
- Review and grade laboratory assignments for both courses.

Christ Is Life Preparatory School, Ghana
Elementary School Teacher Oct 2021–Jan 2023
- Taught Integrated Science, Information and Communication Technology (ICT), and Creative Art; prepared classroom lessons and learning activities.

Humas Informatika, Universitas Muhammadiyah Semarang, Semarang, Indonesia
Lead, Informatics Public Relations Apr 2025–Present
- Led planning for social media content, promotional videos and digital flyers supporting Informatics programme outreach and student engagement.

PROFESSIONAL EXPERIENCE

FinAuthShield Inc., Remote, United States
Mobile Developer / Frontend Lead, ELONZYA Dec 2025–Apr 2026
- Led frontend work for ELONZYA, a ride-hailing mobile platform serving passenger and driver workflows, including booking and trip-management interfaces.

- Improved mobile interface performance and reliability through feature iteration, debugging and collaborative troubleshooting.

Lembaga Media Center, Universitas Muhammadiyah Semarang, Semarang, Indonesia
Software Development Intern Aug–Oct 2025

- Developed the frontend for My UNIMUS, a student academic-services mobile application.
- Built Doa Pagi, a face-recognition attendance application for university staff, implementing facial identity verification.

PUBLICATIONS

Published articles

Munsarif, M., and **Ampah-Mensah, R.** (2026). "Transfer-Guided Hyperparameter Optimization for Hybrid Compact Convolutional Transformers in Handwritten Recognition." *Journal of the Brazilian Computer Society*, 32(1). doi:10.5753/jbcs.2026.8588

Munsarif, M., and **Ampah-Mensah, R.** (2026). "From Benchmark Accuracy to Clinical Utility: Multimodal, Label-Efficient, and Trustworthy Artificial Intelligence for Breast Cancer Detection." *Biomedical Signal Processing and Control*, Elsevier. doi:10.1016/j.bspc.2026.111770

Ampah-Mensah, R., Odongo, S., Aziz, A. A., and Hardiyant, D. (2026). "Digital Transformation for Learner Equity: The Role of Artificial Intelligence Tutors in Achieving Sustainable Development Goal 4 in Sub-Saharan Africa." *Asian Journal Collaboration of Social Environmental and Education*, 4(1), 17–30. doi:10.61511/ajcsee.v4i1.2026.3421

SELECTED MANUSCRIPTS UNDER REVIEW / SUBMITTED

"MobileFaceLoRA: Parameter-Efficient Face Recognition on Mobile Devices via Low-Rank Adaptation of Foundation Models". *KINETIK* (Under review).

"Patient-Level External Validation of Radiomics–DINOv2 Probability Fusion for Breast Ultrasound Lesion Classification." *Journal of Ultrasound* (Under review).

"Visual, OCR-Text, and Hybrid Evidence Retrieval for Document Visual Question Answering: A Controlled Failure Analysis." *International Journal on Document Analysis and Recognition* (Under review).

"Prospective Fail-Closed Auditing of Machine Learning Compression: Initial Evaluation and a Negative DINOv2 Runtime Case Study." *The Journal of Supercomputing* (Submitted; with editor).

"Robustness Evaluation of Radiomics and Frozen Vision Transformer Representations under Acquisition Shift in Breast Ultrasound". *Frontiers in Biomedical Technologies* (Submitted; with editor).

"Disease Detection and Human-Review Recommendations Under Fixed Diabetic Retinopathy Referral Policies." *Health and Technology* (Submitted; with editor).

SELECTED ACADEMIC AND RESEARCH PRESENTATIONS

2026. Essay presentation, Bandung Essay Competition 3, Indonesia.

2025. "Digital Transformation for Learner Equity: The Role of Artificial Intelligence Tutors in Achieving SDG 4 in Sub-Saharan Africa." Oral research-paper presentation, International Research Paper Competition, Singapore.

2024. Oral presentation on SDG 4 and education, Asian-African Students' Conference, Universitas Diponegoro, Indonesia.

2024. Research paper presentation, Ahmad Dahlan International Youth Camp (ADYC), Indonesia.

HONORS AND AWARDS

2026. Silver and Bronze Medals, Bandung Essay Competition 3; Silver Medal, Science & Engineering Summer Camp, Universitas Muhammadiyah Surakarta; Best Participant, TropAqua Summer Course, Universitas Diponegoro.

2025. Best Impactful Paper and Top 10 Finalist, International Research Paper Competition, Singapore (organized by Student Exchange Abroad).

2024. First Place, APSI National Informatics Competition; First Presenter and Third Article Awards, Ahmad Dahlan International Youth Camp.

Scholarship. University Scholarship, Universitas Muhammadiyah Semarang.

SKILLS

- **Programming:** Python, TypeScript, JavaScript, Java.
- **AI and ML:** PyTorch, TorchVision, TensorFlow, Hugging Face Transformers, PEFT/LoRA; computer vision, model evaluation, knowledge distillation.
- **Deployment:** ONNX, TensorFlow Lite, model quantization.
- **Software Engineering:** React Native/Expo, React, Node.js, Tailwind CSS, NativeWind, Supabase, Firebase, Git, Docker.
- **Languages:** English (fluent); Bahasa Indonesia (intermediate).