

Emmanuel G. Maminta

Vision-Language Models · Multimodal & Embodied AI · Physical Retail AI

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EDUCATION

University of the Philippines Diliman

Quezon City, Philippines

Ph.D. in Artificial Intelligence

Sep 2022–Present

Expected completion: 2027. Adviser: Prof. Rowel O. Atienza.

M.Eng. in Artificial Intelligence

Sep 2022–Jul 2025

B.S. in Electrical Engineering, with honors

Aug 2018–Jul 2022

PUBLICATIONS

A Transferable Variant Signal That Grocery Retrieval Cannot Reach

Emmanuel G. Maminta and Rowel O. Atienza

Asian Conference on Computer Vision (ACCV 2026), **Main Conference**

Accepted for oral presentation. Osaka, Japan · December 2026.

Late Interaction Ranking for Effective Closed-Catalog Grocery Product Retrieval

Emmanuel G. Maminta and Rowel O. Atienza

European Conference on Computer Vision (ECCV 2026), *RetailVision Workshop*

Presented in Malmö, Sweden · September 2026.

What Matters for Grocery Product Retrieval with Open Source Vision Language Models

Emmanuel G. Maminta and Rowel O. Atienza

International Conference on Pattern Recognition (ICPR 2026)

Presented in Lyon, France · August 2026. **RRPR reproducibility badge.**

Sari Sandbox: A Virtual Retail Store Environment for Embodied AI Agents

Janika Deborah Gajo, Gerarld Paul Merales, Jerome Escarcha, Brenden Ashley Molina, Gian Nartea,

Emmanuel G. Maminta, Juan Carlos Roldan, and Rowel O. Atienza

IEEE/CVF International Conference on Computer Vision (ICCV 2025), *RetailVision Workshop*

Presented in Honolulu, Hawai‘i, USA · October 2025.

Featured in Voxel51’s Best of ICCV 2025 research event · November 2025.

RESEARCH EXPERIENCE

Doctoral Researcher

Sep 2022–Present

Ubiquitous Computing Laboratory, University of the Philippines Diliman

- Evaluated **190 open-source vision-language models** for zero-shot grocery retrieval, examining pre-training data, architecture, and input resolution (ICPR 2026).
- Led research on an agentic framework for embodied AI in virtual retail; co-authored Sari Sandbox, a benchmark environment with **over 250 interactive grocery items**.
- Investigated open-vocabulary object detection in vision-language models with support from Samsung Research & Development Institute Philippines.

HONORS

Most Active Contributor Award, Microsoft Research Asia

Aug 2026

AI Summer School, National University of Singapore. Submitted the most contributions to the Global AI Value Challenge during the summer school.

PROFESSIONAL EXPERIENCE

AI Developer

Jan 2025–Present

OpenText Philippines

- Build enterprise AI products, agentic systems, and LLMops/MLOps infrastructure using parameter-efficient fine-tuning (PEFT) and harness engineering.
- Developed an in-house small language model to automate proprietary coding tasks for teams in the Philippines and the United States.
- Engineered knowledge graph-guided retrieval-augmented generation (RAG) with a unified data model for internal applications.

Data Scientist

Nov 2023–Dec 2024

Bank of the Philippine Islands

- Built personalized product recommendations for high-net-worth clients and Jobs-to-Be-Done-based unsupervised clustering for customer segmentation.

Software Engineer

Apr–Oct 2023

Samsung Research & Development Institute Philippines

- Built a proprietary library for efficient, scalable deep learning experimentation.

OPEN-SOURCE SOFTWARE

- **OpenMPR · Initiator.** Started a project sharing grocery retrieval recipes and evaluation resources.
- **stable-worldmodel · Contributor.** Contributed to a reproducible world model research platform.
- **GEPA-Lite · Creator.** Released a lightweight, MIT-licensed Genetic-Pareto prompt optimizer.
- **GEPA · Contributor.** Added AnyMaths for prompt optimization on mathematical word problems.

RESEARCH COMMUNITY

Cohere Labs Open Science Community, Member

Sep 2026–Present

Focus: multimodal AI and world models.

TEACHING AND TRAINING

Teaching contributions, University of the Philippines Diliman

2022

Co-taught EEE 111 (Introduction to Programming and Computation) and EEE 121 (Data Structures and Algorithms) with Prof. Jhoanna Rhodette I. Pedrasa.

NVIDIA-Certified Professional: Agentic AI

NVIDIA-Certified Associate: Generative AI LLMs

Oxford Machine Learning Summer School, Jun–Jul 2024. Enrolled in representation learning and generative AI courses.

TECHNICAL SKILLS

Modeling: Python, PyTorch, Transformers (Hugging Face), OpenCLIP, PEFT, OpenCV.

Agents and evaluation: DSPy, LangGraph, LlamaIndex, MLflow, Weights & Biases, Langfuse.

Inference: vLLM, NVIDIA Triton, ONNX, FastAPI.

Infrastructure: Slurm, NVIDIA Jetson, AWS, Azure, Google Cloud.