

## Gerarld Paul M. Merales

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### Experience

- AI Engineer Intern** - Stratpoint Technologies July - October 2025
- Developed weekly capstones about Large Language Models, Computer Vision, and Data Science.
  - Utilized Retrieval Augmented Generation to implement a chatbot that grounds its answers on ChromaDB and SQL queries.
  - Created a LangGraph pipeline for converting machine learning frameworks to a federated learning flower file.

### Education

**University of the Philippines - Diliman** Diliman, Quezon City  
BS Computer Engineering - 1.4431 (Magna Cum Laude) July 2025  
Relevant Coursework: Deep Learning Course. Information Theory. Competitive Programming Club. Computing Platforms and Optimization. Distributed Systems. Communication Systems and Networks. Computer Architecture and Organization. Advanced Computer Architecture Microcontrollers and Embedded Systems.

### Leadership & Activities

- UP Algorithm Plus-plus Secretary** UP Diliman, Quezon City  
September 2023 – June 2024
- Organized weekly competitive programming competitions for members.
  - Designed and managed social media publications to increase engagement.
  - Participated in and contributed to weekly training sessions to enhance problem-solving skills.

### Projects

- Sari-sari Store AI Training Environment**
- Developed a 3D synthetic grocery store environment with interactable items accessed via API using C# and Python in Unity
  - Modeled 3D grocery items using Blender. Generated a Blender Script Add-on to transform meshes and edit image textures.
  - Published the paper in ICCV Retail 2025 as one of the top papers.
- Rust Audio Codec (wav to flac)**
- Led a team to develop a **Rust-based audio codec** for WAV-to-FLAC conversion.
  - Implemented statistical predictors and data encoders to supply data to the flac writer from the wav amplitude values.
  - Conducted unit and integration testing using **Cargo**.
- STM32 Fire Alarm System**
- Led a team to implement a **Fire Alarm System** using STM32 written in C.
  - Engineered a **USART-based** communication system with an ESP8266 Wi-Fi module.
  - Integrated **ThingSpeak API** for real-time cloud monitoring.

### Skills & Interests

**Technical:** Python, Pytorch, Numpy, Pandas, Tensorflow, Verilog, HPC, C++, Javascript, Git, SQL, Linux, GitHub, Rust, STM32, Arduino, Raspberry Pi, ChromaDB, SQL, Data Science, LangGraph, LangChain  
**Language:** English, Filipino, Waray, Bisaya  
**Interests:** Gaming, Jogging, Reading, Electronics, Guitar