Ram David M. Brodett

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PROFESSIONAL SUMMARY

Computer Science Senior with a solid background in Machine Learning concepts and Backend Development. Experienced in developing scalable applications and setting up AI workflows, with a focus on prioritizing code quality and practical engineering solutions.

EXPERIENCE

Undergraduate Researcher Oct 2024 – Present

De La Salle University Human-X Interactions Laboratory *Manila*

- Investigated existing solutions in generative audio to pinpoint gaps in user personalization and localization.
- Researched industry-standard methodologies for building AI pipelines, identifying key dependencies and integration points.
- Formulated a comprehensive development strategy for a novel text-to-audio application.

PROJECTS

Hearsona May 2025 – Present

- Developed a text-to-audio generation platform utilizing asynchronous task processing to efficiently manage user requests.
- Architected a dynamic LLM-orchestrated pipeline with human-in-the-loop refinement, improving output relevance through iterative feedback.
- Configured inference parameters to balance computational load, achieving high-fidelity audio generation with responsive performance.

Distributed OCR System Nov 2025

- Architected a distributed system using gRPC and Protocol Buffers, implementing a Producer-Consumer pattern on the server to decouple network I/O from CPU-intensive OCR tasks.
- Designed a thread-safe job queue to manage incoming requests, maximizing server throughput and preventing request drops under high load.
- Developed an asynchronous Qt (C++) client with automatic fault tolerance, implementing retry logic and exponential backoff to handle network instability.

Lexson Inventory and Billing System Oct 2024 – Dec 2024

- Led the end-to-end development of a custom inventory management system, automating previously manual workflows.
- Streamlined the business pipeline from order fulfillment to billing, eliminating manual entry errors and increasing staff productivity.
- Designed a centralized database architecture to ensure real-time stock tracking and accurate financial reporting.

Handwritten Digit Recognition Jul 2023

- Conducted a comparative study of machine learning models (CNN, MLP, SVM) to classify flattened 28x28 pixel handwritten digits.
- Implemented data normalization and model tuning, achieving a peak accuracy of 97.35% with the SVM classifier.

Sokobot AI Map Solver Jun 2023

- Developed an autonomous agent using Greedy Best-First Search and Priority Queues to solve logic puzzles with high efficiency.
- Implemented Manhattan Distance heuristics to estimate goal proximity, significantly reducing search space traversal compared to blind search methods.
- Designed robust state-tracking logic using HashSets and custom object hashing to detect cycles and prevent redundant computations.

Vending Machine Factory Mar 2023

- Designed a modular simulation of a vending machine factory applying Object-Oriented Design patterns to ensure code maintainability and extensibility.

EDUCATION

De La Salle University Manila
Bachelor of Science in Computer Science, Major in Software Technology *Aug 2022 – Oct 2026*

TECHNICAL SKILLS

Languages: Python, C/C++, C#, Java, JavaScript, TypeScript, Kotlin, Go, SQL
Frameworks: Pytorch, Hugging Face, FastAPI, Next.js, React.js, Qt, JavaFX, JUnit
Libraries: Pandas, NumPy, Scikit-learn, Llama.cpp, Matplotlib
Developer Tools: Git, Docker, Jira, Google Cloud Platform (GCP), Amazon Web Services (AWS)