

ANAS MTAWEH

AI Product Builder | AI-Assisted Systems & Rapid Prototyping

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PROFESSIONAL SUMMARY

CS graduate specializing in AI-driven product development. Expert in identifying technical gaps, architecting end-to-end solutions, and shipping working products rapidly using AI-assisted workflows. Combines system-level design thinking (LLMs, retrieval systems, full-stack architecture) with strong product intuition, outcome-driven validation, and fast iteration cycles. Leverages Claude, GPT, and AI tools as primary development medium.

EDUCATION

Bachelor of Science in Computer Science & Information Technology Graduated Jan 2026

Lebanese International University (LIU), Beirut, Lebanon

Software Development, Artificial Intelligence, Database Systems

PROJECTS

Lokr – AI Code Intelligence Engine (Graph-RAG) github.com/Anasmtaweh/lokr Jan 2026 – Feb 2026

Privacy-first code intelligence for local LLM workflows

- Architected a privacy-first Graph-RAG engine combining semantic vector search with dependency graph traversal to eliminate LLM retrieval hallucinations in local workflows.
- Designed a polyglot retrieval pipeline using Tree-sitter AST parsing, ChromaDB embeddings, and topological context bounding to improve LLM reasoning accuracy across 6 languages.
- Implemented programmatic grounding clamps constraining LLM outputs to only reference verified files and functions in the dependency graph, preventing hallucinated code suggestions.
- Extended with an MCP server and lokr-assistant a multi-agent layer for code review, bug fixing, and safety validation before deployment.
- Shipped with zero cloud dependency; MCP integration enables deployment as a live tool inside AI agent workflows.

Checkers RL – Reinforcement github.com/Anasmtaweh/CheckersML_D3QN_MCTS Nov 2025 – Dec 2025

Learning Evaluation Framework

Comparative RL architecture study with outcome-driven optimization

- Defined success metrics upfront (win rate vs. random, head-to-head tournaments), structuring all architectural decisions around measurable outcomes rather than proxy metrics.
- Identified and resolved reward hacking where agents optimized for captures over wins; restructured incentives to Win=+1.0 / Loss=-1.0 with captures at 0.1–0.5 by jump complexity, ensuring terminal outcomes dominate learning.
- Architected a dual-paradigm comparison: Value-based D3QN (Q-value learning from board state) vs. Search-based AlphaZero with MCTS (neural network + lookahead planning), validated through rapid empirical iteration.

- Optimized training by resolving a PCIe latency bottleneck via moving small-batch inference to CPU, cutting iteration time from ~2,200s to ~1,750s using Ray for distributed experience collection.
- Deployed a full-stack Flask Web Arena for browser-based benchmarking and human vs. agent sparring.
- D3QN Gen 7 reached 96.2% win rate at episode 18,500; AlphaZero (1,600 MCTS simulations/move) achieved 0% loss rate against the strongest D3QN baseline.

Mishtika – AI-Powered Pet Care Platform pet-ai-render-1.onrender.com

Feb 2025 – May 2025

Full-stack product with AI-driven personalization and workflow automation

- Identified fragmented pet care workflows and designed a centralized platform to aggregate data, manage schedules, and automate personalized recommendations.
- Built with role-based access control, scheduled automation, and CI/CD pipeline (GitHub Actions → Docker → AWS ECR → EC2), with test automation enforcing code quality before deployment.
- Improved AI recommendation quality by dynamically injecting structured pet context (species, breed, health history) and localized product datasets into LLM prompts per query.
- Automated duplicate email prevention via MongoDB scheduling and JWT expiration; secured media access via S3 pre-signed time-limited URLs.
- Production-deployed on AWS EC2 and formally evaluated as LIU senior capstone delivering GPT-3.5 recommendations, automated scheduling reminders, and role-based access control for real users.

CERTIFICATIONS

- AWS Certified Cloud Practitioner (2025–2028)
- Introduction to DevOps – IBM & Coursera

TECHNICAL SKILLS

Product & Strategy: Problem Identification, System Architecture Design, Outcome Validation, User Feedback Integration, Rapid Prototyping, AI-Assisted Development

AI & LLM Applications: Prompt Engineering, LLM Integration, Retrieval-Augmented Generation (RAG), AI Agent Design, Context Optimization, Dynamic Prompt Injection

Computer Vision: Image Classification, Object Detection, Convolutional Neural Networks (CNNs), Feature Extraction, Image Segmentation, OpenCV

AI Tooling & Platforms: Claude, OpenAI API, Ollama, LiteLLM, Gemini, AI Studio, ChromaDB, Streamlit

System Architecture: Full-Stack Web Applications, API Design, Database Architecture, Deployment Pipelines, Cloud Infrastructure

Cloud & DevOps: Docker, AWS (EC2, S3, ECR), GitHub Actions, CI/CD Pipelines, Infrastructure-as-Code concepts