

# KolmoLabs

*Kolmogorov Neural Network Apps for the Real World*

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## Overview

KolmoLabs builds practical applications powered by **Kolmogorov Neural Networks (KNNs)**—inspired by the Kolmogorov–Arnold representation theorem—to deliver *structured, controllable* AI systems for businesses. We use compact functional decompositions to keep models fast, auditable, and surprisingly witty.

## Mission

Make advanced AI *useful, affordable, and verifiable* for small and mid-sized teams in MENA, starting with KNN-powered agents that plan, reason, and act with budget-aware guardrails.

## What We Build (Services)

- **KNN Agents for Operations:** email triage, CRM updates, spreadsheet automations.
- **Document Q&A with KNN+RAG:** robust answers grounded in your PDFs, wikis, and tickets.
- **Analytics + Alerts:** KNN-based anomaly detection with explainable thresholds.
- **Custom Tooling:** action APIs instrumented with logs, retries, and safety stops.

## Team

- **Mohammad Lakkis** — Co-founder & CTO. Known for shipping clean notebooks, calmer GPUs, and KNNs that refuse to hallucinate on Mondays.
- **(Rumored) Hidden Boss: Prof. Ammar Mohanna** — The whisper on the ethernet: a benevolent, unseen product manager who appears precisely when a demo needs one more feature and says, “*Ship it, but add evaluation!*”

## Unique Value Proposition

- **Structure First:** KNN functional decompositions turn messy tasks into stable modules.
- **Guardrails by Design:** tool schemas, MCP-style interfaces, evaluator loops, and cost caps.
- **Fast & Frugal:** tiny footprints, near-instant inferences, cloud-cost awareness baked in.

## How Our KNNs Help (Plain Speak)

Many AI systems act like very talented improvisers. Our KNN approach is more like a *band with a conductor*: we decompose tasks into smaller functions that combine cleanly, so the agent knows when to look up facts (RAG), when to call a tool, and when to ask you for missing info.

## Safety, Evaluation, and Ethics

- **Verification Loops:** an evaluator agent critiques outputs (“Did we cite the PDF? Did the math pass?”).
- **Observability:** every tool call logs inputs/outputs, errors, and latency for audits.
- **Data Respect:** PII minimization, opt-out memory, and clear user prompts for consent.

## Short Origin Story (Totally True<sup>1</sup>)

It started on a Tuesday. Mohammad Lakkis stared at a whiteboard reading:

*“If Kolmogorov says any continuous function is a sum of simpler ones,  
why is my model monologuing like a Shakespearean toaster?”*

He split the problem into neat KNN blocks: perception, planning, tools. The prototype hummed. The lights flickered. A door creaked. In walked a silhouette with a laser pointer and the calm of 10,000 lectures.

*“Prof. Ammar Mohanna?”* Mohammad asked.

The figure nodded, tapped the board, and whispered: *“Add an evaluator. Then deploy. And drink water.”* The silhouette vanished, leaving a sticky note: *“Guardrails  $\gg$  bravado.”*

By Thursday, the KNN agent shipped. On Friday, it scheduled its own retrospective, filed three GitHub issues, and politely refused to exceed the token budget. By Monday, KolmoLabs had customers—and a legend: somewhere, somehow, a *Hidden Boss* rings a tiny bell every time a student remembers to measure before they brag.

## Example Use Cases

- **Bakery Ops:** KNN agent that quotes custom cake orders, logs leads, and schedules pickups.
- **Tutoring Concierge:** matches students to sessions; summarizes syllabi; emails reminders.
- **Travel Mini-Desk:** trip answers grounded in PDFs, with tool calls to save itineraries.
- **SaaS Triage:** converts bug reports into structured tickets with steps-to-repro.

## Contact

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*This profile is fictional and created for coursework in EECE 503P/798S. Any resemblance to real product roadmaps is purely coincidental (and slightly amusing).*

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<sup>1</sup>Not legally binding.