

# KAAN GÜMELE

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## SUMMARY

**Applied AI Engineer & Data Scientist** with hands-on experience building **end-to-end ML/AI** systems, including autonomous browser agents, multi-hop RAG pipelines (vector + graph), and production-grade deep learning models. A published researcher in medical AI (CNN, U-Net, Transformers) with a proven ability to design, deploy, and scale real-world AI solutions across automation, retail, and geospatial domains. A proactive leader and collaborative team player, experienced in coordinating cross-functional squads and mentoring emerging talent to deliver high-impact, scalable products. Passionate about model optimization, agentic workflows, and production ML engineering.

## CORE TECHNICAL SKILLS

**GenAI & Agentic Workflows:** LangChain, LangGraph, CrewAI/AutoGen, Function Calling, Agentic Design Patterns, LLM Evaluation (Ragas).

**RAG & Vector Search:** Chroma, FAISS, Neo4j, Hybrid Search (Vector + Keyword), GraphRAG, Metadata Filtering, Advanced Chunking Strategies.

**Data Science & Machine Learning:** Statistical modeling, feature engineering, large-scale data mining, geospatial intelligence, and predictive analytics.

**ML & Vision Engineering:** PyTorch, TensorFlow, CNNs, ViT, U-Net, Model Quantization (GGUF, AWQ), Knowledge Distillation, Fine-tuning (LoRA/QLoRA).

**MLOps & Observability:** AWS (Bedrock, SageMaker), Docker, Observability (LangSmith, Arize Phoenix, W&B), Vector DB Management (Pinecone/Weaviate), CI/CD.

**Data & Backend:** PySpark, SQL, FastAPI, Streamlit/Gradio (AI Demos), Asynchronous Programming, ETL automation (n8n).

## PROFESSIONAL EXPERIENCE

### Applied AI Engineer (AI & Data Scientist) — Mapin Data

06/2025 – Present

- Built an autonomous browser AI agent for Google Maps, reducing manual QA by ~80% and improving validation accuracy by 15–20%.
- Designed a production ETL + scraping pipeline using n8n, Python, and AWS (S3, Lambda, Athena/Redshift).
- Analyzed **4.5B+ mobile events** using PySpark to generate customer personas.
- Fine-tuned CNN & Transformer models for restaurant imagery; deployed with Docker.
- Built Anadolu Efes menu analytics system (schema design, ingestion, classification).
- Led cross-functional collaboration across backend, product, and data teams.

### Rising Star — T3 Foundation

01/2025 – 11/2025

- Designed an autonomous certification generation/validation workflow.
- Mentored Teknofest finalists on ML project design & dataset preparation.
- Delivered workshops on LLMs, agents, and AI engineering.

## Data Analyst — Migros One

08/2024 – 09/2024

- Built an automated product scoring pipeline using sales + review data.
- Led review-processing workflow (scraping, cleaning, sentiment).
- Created analytics dashboards in BigQuery.

## Intern Software Engineer — VBT Software

06/2024 – 08/2024

- Gained experience across web, mobile, mainframe, and DB systems.
- Built internal automation tools for QA and data processing.

## RESEARCH & PUBLICATIONS

- Oral Cancer Classification with CNN-based SOTA transfer learning
- Deep Learning Based Meningioma Grading — ResNet50 (EANS 2025)
- Thoracolumbar Fracture Detection using U-Net (EANS 2025)
- Meningioma Tumor Grade Prediction (ISMSIT 2025, TÜBİTAK 2209-A)

## SELECTED PROJECTS

- **Autonomous Multi-Task AI Agent** — LangGraph + LLMs for planning, decision routing, workflow execution.
- **Advanced Multi-hop RAG Pipeline** — Chroma + Neo4j + custom chunking; ~25–30% retrieval improvement.
- **Document-Aware RAG Chatbot** — LangChain + embeddings + Streamlit.
- **Drone Vision System** — ROS + OpenCV model for plant disease detection.
- **Dental Lesion Segmentation** — U-Net-based medical imaging model.

## COMPETITIONS

- Kuika AI Hackathon — Finalist
- GDZ Elektrik Datathon — Finalist
- Data & Analytics Challenge — Finalist
- Case Hunter — Finalist (earned internship at Migros One)

## CERTIFICATIONS

- Efficiently Serving LLMs, Diffusion Models, Prompt Engineering — DeepLearning.AI
- Generative AI (PMI)
- Agile 101 – SoftTech
- Machine Learning & Deep Learning Bootcamps — Global AI Hub
- Teknofest 2024 Certificate

## EDUCATION

**MSc — Computer Engineering**, Istanbul Cerrahpaşa University (*in progress*)

**BSc — Computer Engineering**, Istanbul Medeniyet University, 2025