

EDUCATION

Department of Computer Engineering, Hacettepe University

Ankara, Türkiye

MSc. in Computer Science

2022 - 2025

- GPA: 3.83
- Advisor: Prof. Dr. Erkut Erdem
- Participated in a joint research program between Koç University, Hacettepe University, and the National Institute of Advanced Industrial Science and Technology (AIST), funded by TÜBİTAK.
- Research area: Multimodal Large Language Models, Vision-Language Learning, and Efficient Foundation Model Architectures

Department of Computer Engineering, TOBB University of Economics and Technology

Ankara, Türkiye

BSc. in Computer Science and Engineering

2015 - 2020

- **Thesis:** *Roadpulse (First ranked)*
- Roadpulse is a real-time application designed to detect road potholes using camera streams.

PUBLICATIONS

1. **Karanfil, E., Imamoglu, N., Erdem, E., & Erdem, A. (2025).** *A Vision-Language Framework for Multispectral Scene Representation Using Language-Grounded Features.* IGARSS 2025. <https://arxiv.org/abs/2501.10144>
2. **Karanfil, E., Imamoglu, N., Erdem, E., & Erdem, A. (2025).** *Spectral-LLaVA: A Multimodal Large Language Model for Multispectral Remote Sensing with Instruction Tuning.* Preprint.

EXPERIENCE

Prometa AI, Istanbul | Software Engineer, Generative AI

2025.05 - Present

- Consulting for leading enterprises in Türkiye on the design and deployment of large-scale agentic systems and intelligent automation pipelines.

AIST Research Institute, Tokyo | Visiting Researcher

2024.10 - 2025.04

- Developed *Spectral-LLaVA*, a framework bridging spectral imagery and natural language through spectral-aware encoders and instruction tuning.

n11.com | Software Engineer, Machine Learning

2024.01 – 2024.10

- Optimized the Search Engine's spell-checker module, achieving a ~1% reduction in zero-result query rate and improving query relevance.
- Developed a visual similarity retrieval service using deep feature embeddings, enhancing search experience and product discovery.

Trueyogi | Software Engineer, Machine Learning

2022.06 - 2024.01

- Developed a human face analysis module capable of detecting lesions, acne, and wrinkle locations using unsupervised learning techniques without requiring labeled data, and recently reached $\approx 5,000$ subscribed users.

GarantiBBVA Technology | Software Engineer, Data

2020.05 - 2022.06

- Designed and implemented a real-time anomaly detection pipeline capable of processing over **300,000 data points per minute**, enabling scalable model training and low-latency predictions.

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| TECHNICAL COMPETEN- CIES | <p>Machine Learning & Deep Learning: PyTorch, TensorFlow, Distributed Training (DeepSpeed, FSDP)</p> <p>Programming: Python, Java, Scala, SQL</p> <p>Data & Infrastructure Systems: Apache Spark, Kafka, Hadoop, BigQuery, Dataflow, Vertex AI Feature Store</p> <p>Databases & Vector Stores: PostgreSQL, MSSQL, BigQuery, MongoDB, Milvus, FAISS, Redis</p> <p>Cloud & DevOps: Google Cloud Platform (GCP), Docker, Kubernetes, Cloud Run, Artifact Registry, CI/CD (Jenkins)</p> <p>APIs & Services: FastAPI, RESTful Architecture, gRPC, Microservices Design</p> <p>System Design & Scalability: Event-Driven Pipelines, Streaming Data Processing, High-Throughput ML Serving</p> |
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| ACADEMIC SERVICES | <p>Teaching Assistant <i>CMP 784: Deep Learning (Graduate Level)</i></p> <p>Delivered invited talks on <i>Multimodal Learning</i> at:</p> <ul style="list-style-type: none"> – Nanyang Technological University (NTU), Singapore – Technical University of Berlin, Germany – National Institute of Advanced Industrial Science and Technology (AIST), Japan – IGARSS 2025, Brisbane, Australia (Oral Presentation) |
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