Curriculum Vitae

Mustafa Eren KOÇ

Computer Engineer · Scientometrics, Data Mining & NLP

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Research Interests

Scientometrics and the science of science · data mining and natural language processing for scholarly data · research information systems and open research data

Profile

I build open, reproducible infrastructure for measuring research. **TRBio** links national academic records to OpenAlex to map Türkiye's bioinformatics community and is the basis of two first-author manuscripts submitted in November 2026; **Hocam Kim?** applies a transparent, field-normalized method to 200,000+ academics and 4.9 million publications. I hold a B.S. in Computer Engineering (ITU) and a second B.S. in Business Administration.

Education

Istanbul Technical University — *Jul 2026*
B.S. in Computer Engineering (100% English) — *Istanbul*

- GPA 2.90/4.00 · final-semester GPA 3.39/4.00
- Graduation project: TRBio, Bioinformatics Community Portal (AA in both terms); advisor Assoc. Prof. Ali Çakmak
- Selected coursework (ITU letter grades; AA is the highest): Artificial Intelligence Aided Computer Engineering (AA), Functional Programming (AA), Probability and Statistics (BA), Engineering Mathematics (BA), Software Quality and Testing (BB+), Computer Architecture (BB), Signals and Systems (BB), Introduction to Information Systems (BB). Also: Database Systems, Analysis of Algorithms I–II, Software Engineering, Operating Systems, Computer Vision.
- Kale Foundation (KSV) scholarship holder throughout the degree

Anadolu University, Faculty of Business Administration — *May 2025*
B.S. in Business Administration — *Eskişehir*

- GPA 3.38/4.00 · Honors
- Selected coursework: Auditing (AA), Business Information Systems (AA), Strategic Management (AA), Capital Markets and Financial Institutions (AA), Cost and Management Accounting (AA), Financial Statement Analysis (BA)

George Mason University — *Summer 2019*
Summer English Program — *Virginia, USA*

Submitted Manuscripts

1. **Koç, M. E.**, & Çakmak, A. Mapping Bioinformatics in Türkiye: A Network-Based Review of Researchers, Institutions, and Research Themes. *Submitted to Briefings in Bioinformatics, November 2026.*
2. **Koç, M. E.**, & Çakmak, A. TRBio: A Curated Knowledge Base and Network Resource for the Bioinformatics Research Community in Türkiye. *Submitted to Database (Oxford), November 2026.*

Data & Code

- **Koç, M. E.**, & Çakmak, A. (2026). TRBio 1.0: de-identified co-authorship network, aggregate results and analysis code for “Mapping Bioinformatics in Türkiye” and “TRBio” (Version 1.0) [Data set]. Zenodo. doi.org/10.5281/zenodo.24208634 · Code: github.com/mustafaerenkoc44/mapping-bioinformatics-turkiye

Research Projects

TRBio — Bioinformatics Portal of Türkiye · Software Engineer · ITU Graduation Project *Sep 2025 – Present*

trbio.info · ITU graduation project: curated knowledge base of Türkiye's bioinformatics research community; built with Naya Şahin, advised by Assoc. Prof. Ali Çakmak.

- Built the identity-resolution, master-data, scoring and portal layers (Python, FastAPI, MongoDB, D3.js) that link national academic records to OpenAlex through strict ORCID-based matching.
- Catalog of 264 researchers at 99 universities in 21 curated research areas tagged with a local LLM (Ollama); co-authorship network and a collaborator recommender reaching ROC-AUC 0.77 on collaborations formed after 2020 (retrospective validation).
- Added a moderated profile-correction workflow with an audit log and a data policy aligned with KVKK (aggregate reporting, de-identified co-authorship data).
- First author of two manuscripts submitted to Briefings in Bioinformatics and Database (Nov 2026); graduation project graded AA in both terms.

Hocam Kim? · Founder & Software Engineer · Independent Public Project *Oct 2026 – Present*

hocamkim.com · Free, transparent directory and field-normalized ranking of academics in Türkiye.

- Built a public directory of 200,000+ academics across 235 institutions and 2,370 subfields, with about 4.9 million deduplicated publications searchable through Meilisearch.
- Designed an open, versioned scoring method with eight components, including SCImago Journal Rank (SJR) quartile–weighted publications, citation percentiles, funded projects, thesis supervision, international collaboration and patents; scores are recomputed daily and compared within each field.
- Linked 111,000+ of these academics to OpenAlex author records through ORCID and shared DOIs. Stack: Python, FastAPI, Jinja2, MongoDB, Meilisearch, Cloudflare Tunnel; 7,600+ automated tests.

Experience

Klaris *Mar 2026 – Present*

Founder & Software Engineer · klaris.com.tr · cosmetic-ingredient analysis app, live since September 2026 *Istanbul*

- Designed, built and launched the app single-handedly; it explains ingredients in plain Turkish and shows the reasoning behind every product score.
- Developed native iOS (Swift, SwiftUI, StoreKit) and Android (Kotlin, Jetpack Compose, Google Play Billing, ML Kit barcode scanning) apps with in-app subscriptions.
- Built the Python data pipeline and the FastAPI, PostgreSQL and Redis backend behind a 1.5 million+ product catalog, with ingredient normalization and automated quality gates; run it on a self-managed Linux server with Docker, Nginx and CI/CD.
- Designed the scoring engine, which produces a product score and a personal match across four skin and four hair dimensions.

Kuveyt Türk Participation Bank *Jan 2024 – Jun 2026*

IT Auditor (Part-Time) · Board of Inspectors · Information Systems Audit *Kocaeli*

- Audited IT general controls (access management, change management, backup and business continuity) against the information-systems regulation of BDDK (Türkiye's banking regulator) and KVKK (Türkiye's personal-data protection law), documenting findings in a criteria–evidence–cause–effect format.
- Authored a 26-page benchmark audit of the mobile banking apps of 10 leading Turkish banks across five areas (store ratings and releases, onboarding, login security, customer acquisition, money transfers).

Outlier *Dec 2024 – Jun 2026*

AI Trainer (Coding) · Freelance *Remote*

- Wrote challenging coding prompts and reference solutions in Python, C/C++ and JavaScript/TypeScript, and rated and ranked model responses for correctness and quality (RLHF) to train large language models.
- Reviewed and approved other contributors' submissions as a quality reviewer.

Arçelik *Aug – Sep 2023*

Software Intern · Digital Manufacturing Systems · Bolu Cooking Appliances Plant *Bolu*

- Built a full-stack web application (React, Node.js/Express, PostgreSQL) to replace Excel-based tracking of factory test data, developing both the back end and the front end.
- Delivered eight screens (production lines, stations, test equipment, test types and parameters, data entry, editing and reporting) on a relational schema and REST API.

Ministry of Youth and Sports of Türkiye *Jul 2023*
Network & Hardware Intern · IT Department · Network Management Branch *Ankara*

- Installed and configured Cisco routers and switches (IP addressing, subnetting, security settings), including rack mounting and cabling; tested and troubleshot the network with cable testers and Wireshark.

Course Projects

LLM Code and Test Generation
BLG 475E Software Quality and Testing

- Built the evaluation pipeline for LLM-generated Java code and unit tests on 30 HumanEval-X tasks: local llama.cpp inference, JUnit adapters, JaCoCo branch coverage and PITest mutation testing in GitHub Actions CI (team of two). (BLG-475E-Term-Project)

Local Wikipedia RAG Assistant
BLG 483E AI Aided Computer Engineering

- Fully local retrieval-augmented assistant over 40 Wikipedia articles: sentence-aware chunking, local embeddings, SQLite and ChromaDB, Llama 3.2 via Ollama and a Streamlit chat interface. (blg-483e-hw3-local-wikipedia-rag)

Concurrent Web Crawler and Search Engine
BLG 483E AI Aided Computer Engineering

- Standard-library Python crawler with live search while indexing: depth-bounded crawling, deduplication, back pressure, a resumable SQLite (WAL) frontier and a localhost dashboard. (blg-483e-hw1)

QueryCurious — Trade Analytics
BLG 317E Database Systems

- Flask and MySQL analytics app; built the streaming ETL that loads 126 MB of trade data into a nine-table schema, plus the admin panel and route explorer (team of five). (QueryCurious)

Honors & Support

- Kale Foundation (KSV) undergraduate scholarship, held throughout the degree
- Graduated with Honors, B.S. in Business Administration, Anadolu University, 2025
- Klaris accepted to Microsoft for Startups (Azure Credits) and the OVHcloud Startup Program (€10,000 in Credits), 2026

Skills

Programming: Python, Swift, Kotlin, TypeScript/JavaScript, SQL · also Java, C/C++
Backend & Data: FastAPI, Flask, Node.js/Express, PostgreSQL, MongoDB, MySQL, Redis, Meilisearch, ETL pipelines, pytest
Infrastructure: Linux, Docker, Nginx, CI/CD, Cloudflare, systemd
AI & LLMs: LLM integration and evaluation, prompt engineering, RAG (ChromaDB), local models (Ollama, llama.cpp), RLHF
Data Analysis: pandas, NumPy, SciPy, statsmodels, scikit-learn, NetworkX, matplotlib; OpenAlex, ORCID, SCImago (SJR)

Languages

Turkish (native) · English (full professional proficiency; B.S. taught 100% in English)

Activities

ITU ACM Student Chapter, Events Team Member (2023–2026) · ITU Genç TEMA, Member (2021–2026)
Events: Audit & Advisory Fest (2025) · Start Camp, Özyeğin (2020) · ITU summits (2018–2020) · Leadership Summit, Boğaziçi (2017)
Work & Travel USA: retail in New Jersey (2021) and delivery in New York City (2022)

References

Assoc. Prof. Ali Çakmak · Istanbul Technical University, Department of Computer Engineering
ali.cakmak@itu.edu.tr · Graduation project advisor and co-author