

Makbule Gulcin Ozsoy

London, UK

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Summary

Machine learning engineer and researcher with background in NLP, recommender systems, ranking, and LLM-based applications. Experienced in designing and deploying production-grade ML systems and text-to-query generation pipelines.

Work Experience

Neo4j

London, UK

Software Engineer / Machine Learning Engineer

April 2024 - Present

• Natural Language Processing & LLM Systems (Python)

- Led development of Neo4j's Text2Cypher capability; released the first dataset and model; improved performance by 7–10% via evaluation-guided fine-tuning.
- Built evaluation and benchmarking frameworks for LLMs (Gemma, Llama, Gemini, GPT) for systematic text-to-query comparison.
- Developed LLM fine-tuning, inference, and offline evaluation pipelines; supported deployment of fine-tuned models in production.
- Conducted research on structured text-to-query generation (multilingual modeling, test-time strategies, schema robustness); presented work at workshops held at COLING'25, LREC'26, SIGMOD'26.

Short-Term Roles

London, UK

Machine Learning Engineer / Software Engineer

September 2023 - April 2024

• Natural Language Processing (Python), Software Development (Go)

- Developed LLM-based methods for financial text understanding using boundary-aware segmentation of long conversations; improved model performance by 1.5%.
- Built data pipelines and preprocessing workflows for scalable model training and evaluation.
- Developed backend systems including authentication and access control for a digital asset platform.

Meta (formerly Facebook)

London, UK

Machine Learning Engineer

January 2021 - August 2023

• Recommender Systems, Ranking (Python)

- Developed ranking and recommendation systems for Shops (Facebook and Instagram), improving product ranking quality across user-facing surfaces.
- Improved recommendation performance by 5.5% in 2022 and 2.1% in H1 2023 through model and feature optimization.
- Built and iterated on production ML pipelines for training and evaluation of ranking systems.
- Mentored and onboarded seven new hires and junior engineers, supporting their ramp-up on the production codebase.

Insight Centre for Data Analytics, University College Dublin (UCD)

Dublin, Ireland

Postdoctoral Researcher

February 2019 - January 2021

• Recommender Systems (Python)

- Designed and developed modules for recommender systems.
- Conducted research on Reinforcement Learning-based and Heterogeneous Information Networks-based recommendation systems, and published related work.
- Co-supervised and mentored students in the research group. Reviewed research papers for various journals.

Unscrambl LLC

Ankara, Turkey

Data Scientist

October 2016 - February 2019

• Natural Language Processing, Machine Learning (Python)

- Implemented the early version of a chatbot designed for financial institutions and banks. Developed Named Entity Recognition and intent classification modules for Turkish and English texts.
- Conducted batch data analysis and constructed predictive models to gain insights and address business issues, specifically in the telecom and finance industries.

Early Roles

Ankara, Turkey

Software Engineer, Researcher

• Natural Language Processing (Java), Computer Networks (C++)

- Implemented NLP modules for a sentiment analysis tool tailored to short unstructured Turkish documents.
- Worked in the high-frequency radio communications domain. Implemented a layered network protocol and clients for Stanag 5066. Developed modules related to routing algorithms in ad-hoc networks.

Education

Middle East Technical University (METU)

Ankara, Turkey

PhD, Computer Engineering, Recommender Systems

- Dissertation Title: A Multi-Objective Recommendation System
- Visiting Student, Computer Science, University of Calgary, Calgary-Alberta, Canada (October 2014 - September 2015)

Middle East Technical University (METU)

Ankara, Turkey

MSc, Computer Engineering, Natural Language Processing

- Dissertation Title: Text Summarization Using Latent Semantic Analysis

Middle East Technical University (METU)

Ankara, Turkey

BSc, Computer Engineering

- Senior Year Project: RadioRead - Text mining on Turkish medical radiology reports

Selected Publications

All	Complete publication list available on Google Scholar: https://scholar.google.com/citations?user=Cmbcf_UAAAAJ
2026	Makbule Gulcin Ozsoy, Incremental Multilingual Text2Cypher with Adapter Combination, GRADES-NDA workshop, SIGMOD/PODS, (2026)
2026	Rima Dessi, Makbule Gulcin Ozsoy, Improving Text2Cypher with Confidence-Based Test-Time Strategies, KG-LLM workshop, LREC, (2026)
2025	Makbule Gulcin Ozsoy, Leila Messallem, Jon Besga, Gianandrea Minneci, Text2Cypher: Bridging Natural Language and Graph Databases, GENAIK workshop, COLING, (2025)
2024	Makbule Gulcin Ozsoy, Multilingual Prompts in LLM-Based Recommenders: Performance Across Languages, ROEGEN workshop, RecSys, (2024)
2020	Makbule Gulcin Ozsoy, Diarmuid O'Reilly Morgan, Panagiotis Symeonidis, Elias Z Tragos, Neil Hurley, Barry Smyth, Aonghus Lawlor. MP4Rec: Explainable And Accurate Top-N Recommendations In Heterogeneous Information Networks. IEEE Access 8 (2020)
2019	Bichen Shi, Makbule Gulcin Ozsoy, Neil Hurley, Barry Smyth, Elias Z. Tragos, James Geraci, Aonghus Lawlor. PyRecGym: A Reinforcement Learning Gym for Recommender Systems. RecSys 2019: 491-495 (2019)
2018	Makbule Gulcin Ozsoy, Tansel Ozyer, Faruk Polat, Reda Alhaj. Realizing Drug Repositioning by Adapting a Recommendation System to Handle the Process. BMC Bioinformatics 19(1): 136 (2018)
2016	Makbule Gulcin Ozsoy. From Word Embeddings to Item Recommendation. arXiv preprint arXiv: 1601.01356 (2016)
2014	Makbule Gulcin Ozsoy, Kezban Dilek Onal, Ismail Sengor Altinogvde. Result Diversification for Tweet Search. WISE 2014: 78-89 (2014)
2011	Makbule Gulcin Ozsoy, Ferda Nur Alpaslan, Ilyas Cicekli. Text Summarization using Latent Semantic Analysis. Journal of Information Science 37(4): 405-417 (2011)

Skills

Programming & Machine Learning Tools	Python, Pandas, NumPy, Scikit-learn, TensorFlow, HuggingFace, Unsloth, Jupyter Notebook, VLLM, Wandb, spaCy, Rasa NLU
Software Engineering Tools	Git, RunPod, Atlassian Platforms (JIRA, Confluence), Linear, Trello
Machine Learning	LLM fine-tuning and optimization, Text-to-Query systems, Recommender Systems, Evaluation frameworks

Languages

English	Professional proficiency
Turkish	Native