Sevda ÖĞÜT

Computer Science PhD Candidate at EPFL

Specialized in Graph Machine Learning for Digital Pathology

Expected Graduation: September 2026 | sevda.ogut@epfl.ch | | | |

Research Interests

I am dedicated to advancing **personalized oncology** through **graph deep learning**, enabling AI models to not only assist in clinical decision-making but also provide interpretable insights. My work also emphasizes **whole-slide image analysis** and the development of reliable foundation models for **computational biology**.

Education

PhD Candidate in CS Mar 2023 - Present
EPFL, LTS4 *Switzerland*

My current research is supervised by Prof. Pascal Frossard and Dr. Dorina Thanou and focuses on understanding the **tumor microenvironment** in cancerous tissues using **graph representation learning**. Selected projects:

Benchmarking Instance-Level Learnability and Interpretability in Multiple Instance Learning

- Paper under review for **ECML PKDD 2025**

Spatial Organization of Immune Cells in Metastatic Melanoma Predicts Immunotherapy Response

- Researched the role of tertiary lymphoid structure organization in **progression-free survival** of metastatic melanoma patients using graph neural networks with **IMF-stained slides**
- Abstract presented at the Swiss Cancer Center Léman with collaborators from Lausanne University Hospital (CHUV)

The Impact of Whole-Slide Image Resolution on Foundation Model Performance in Computational Pathology

- Investigating the impact of magnification in **H&E-stained TCGA whole-slide image datasets** (5x, 10x, and 20x) on the embeddings generated by digital pathology foundation models

Towards Graph Foundation Models for Histopathology

- Developing a graph foundation model that represents **tissue images** as **cell graphs**, with cell segmentation and feature extraction, to improve interpretability in AI-driven clinical decision-making

Project Student Sep 2022 - Feb 2023
EPFL, SENS Lab *Switzerland*

Under the supervision of Assoc. Prof. Haitham Al Hassanieh, I contributed to advancing multi-transmitter **molecular communication** systems [2].

BSc in EE Sep 2018 - Jun 2022
Bilkent University, CYBORG *Turkey*

I worked as an undergraduate researcher along with Assoc. Prof. Cem Tekin on **multi-armed bandits** [3]. I was ranked in the **top 10%** among 130 students in the 2018 cohort with a GPA of **3.91/4.00**.

Publications

[1] Sbicego, Luca, **Öğüt**, **Sevda**, Madeira, Manuel, QIN, Yiming, Thanou, Dorina, Frossard, Pascal, "On the Role of Structure in Hierarchical Graph Neural Networks". In: *I Can't Believe It's Not Better: Challenges in Applied Deep Learning*. 2025. URL: https://openreview.net/forum?id=WpYdiLd5Fm.

[2] Elahi, Sepehr, Atalar, Baran, **Öğüt**, **Sevda**, Tekin, Cem, "Contextual Combinatorial Multi-output GP Bandits with Group Constraints". In: *Transactions on Machine Learning Research* (2023).

[3] Wang, Jiaming, **Öğüt**, **Sevda**, Al Hassanieh, Haitham, Krishnaswamy, Bhuvana, "Towards Practical and Scalable Molecular Networks". In: *Proceedings of the ACM SIGCOMM 2023 Conference*. 2023, pp. 62–76.

[4] Sever, Murat, **Öğüt**, **Sevda**, "A Performance Study Depending on Execution Times of Various Frameworks in Machine Learning Inference". In: *2021 15th Turkish National Software Engineering Symposium (UYMS)*. IEEE. 2021, pp. 1–5.

Additional Experience

Participant, OxML Health & Bio Summer School Jul 2024
University of Oxford

- Engaged in discussions about the latest advances in machine learning for healthcare with experts from academia and industry

Participant, Life Sciences Hackathon Apr 2024
EPFL

- Developed *OncoGraph*, a deep learning model that extracts cell-level features from cancer images and constructs tissue graphs adhering to homophily metrics

Teaching Assistant Mar 2023 - Present
EPFL

- CS 433 Machine Learning - Supervised student projects for a course of 600 students
- EE 452 Network Machine Learning
- COM 490 Large-scale Data Science for Real-World Data

Skills

Programming: Advanced Python and MATLAB, Intermediate Hive, Spark, SQL, VHDL, and Assembly.

Tools: PyTorch, PyTorch Geometric, NetworkX, PyTorch Lightning, numpy, pandas, scikit-learn, scikit-image, pillow, OpenCV, OpenSlide, QuPath, Git, Linux, Latex

Languages: Turkish (Native), English (Fluent, TOEFL 113/120), French (Fluent, DELF B2 76/100)

Awards

CS Distinguished Service Award - Honorable mention, EPFL Dec 2023

- In recognition of exceptional service benefiting the CS department and its students.

Research & Academic Excellence Award, Bilkent University Jun 2022

- Awarded to the top 10% of undergraduate students in recognition of research contributions.

Extra-Curricular Activities

President of EPIC (EPFL PhDs of IC) 2024

- Organized social activities for PhD students.
- Hosted tech talks with engineers from Google, Meta, and Uber.

Hobbies:

- reading, piano, board games, running