

# Yasemin Ozkut

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## About Me

AI/ML enthusiast and MSc candidate, specializing in multimodal learning, vision-language models, and computer vision. Seeking full-time AI/ML roles upon graduation in December 2025.

## Education

<b>MSc</b>	<b>The Ohio State University (OSU)</b> , Electrical and Computer Engineering • <b>Focus:</b> Multimodal Learning, VLMs, Computer Vision	Columbus, OH, USA Aug 2024 – Expected Dec 2025
<b>BSc</b>	<b>Sabanci University</b> , Computer Science and Engineering • <b>Minor:</b> Business Analytics, School of Management	Istanbul, Turkey Sept 2019 – Feb 2024

## Skills

**Languages:** Python, C++, C, C#, SQL, JavaScript

**Frameworks & Libraries:** PyTorch, Pytorch Lightning, CUDA, YOLO, Keras-OCR, OpenCV, Unsloth, Hugging Face, Monai, Hydra, LangChain, LangGraph, Pandas, NumPy, Scikit-learn, React.js, Node.js, Express.js, MongoDB, Flutter

**Tools:** Git, SLURM, Command Line (Linux), LaTeX, Gephi, Postman, Unity, Figma

**Techniques:** Deep/Machine Learning, Multimodal Vision-Language Models (VLMs/LLMs), Distributed Training, Prompt Engineering & AI-Assisted Coding, Computer Vision, Data Structures & Algorithms, Object Oriented Programming

## Publications

<b>ERDES: A Benchmark Dataset for Retinal Detachment Classification in Spatiotemporal Ocular Ultrasound</b> , <i>Nature Scientific Data</i> 🔗 <a href="#">Dataset Website</a>   <a href="#">Hugging Face</a>	Submitted July 2025
Pouyan Navard, <b>Yasemin Ozkut</b> , Sirikar Adhikari, Alper Yilmaz	

## Experience

<b>Ubihere</b> AI/ML Engineer Intern (Full-Time)	Aug 2025 – Present Columbus, OH
<ul style="list-style-type: none"><li>Building an LLM-based agentic framework for person tracking from spatial coordinates aligned with floor plans.</li><li>Leveraging gpt-oss-20B as a reasoning backbone to associate trajectories across frames.</li><li>Developing LangChain/LangGraph pipeline for coordinate reasoning, memory, and agentic workflows.</li></ul>	
<b>Photogrammetric Computer Vision Lab (PCVLab)</b> Graduate Research Assistant	Aug 2024 – Aug 2025 Columbus, OH
<ul style="list-style-type: none"><li>Research on multi-modal learning, VLMs, and Computer Vision (see <b>Projects</b> section for details).</li></ul>	
<b>DAI-Labor</b> Artificial Intelligence Researcher Intern	Jul 2023 – Sept 2023 Berlin, Germany
<ul style="list-style-type: none"><li>Built real-time object detection system for supermarket products (see <b>Projects</b> section for details).</li></ul>	
<b>Further Network</b> Software Developer Intern	Jul – Aug 2022 Istanbul, Turkey
<ul style="list-style-type: none"><li>Enhanced Furtherpass (pandemic travel-planning React Native app) by adding a password visibility toggle and an email-confirmation workflow for registered but inactive new users.</li></ul>	

## Projects

<b>ERDES Benchmark</b> , PCVLab 🔗	Jun 2025 – Jul 2025
<ul style="list-style-type: none"><li>Tuned hyperparameters and trained 16 classifier models across 8 architectures (ViT, UNETR, SwinUNETR, V-Net, UNet++, SENet154, 3D ResNet, and 3D UNet), developing a two-stage diagnostic pipeline that achieved <b>0.937–0.991</b> (Non-Retinal Detachment vs. Retinal Detachment) and <b>0.725–0.882</b> (Macula Intact vs. Detached).</li></ul>	

- Improved a Lightning-Hydra pipeline for stability and distributed training, enabling systematic experimentation.
- Created stratified train/val/test splits for binary tasks (Retinal Detachment and Macula Intact vs. Detached).
- Benchmark dataset accompanying the paper is publicly available on Hugging Face and models trained with ERDES dataset are publicly available on Github.

### **Semantic Person Re-Identification (ReID) via LangGraph and Vision-Language**

Jul 2025

#### **Reasoning**, Personal Project

- Built a LangGraph workflow for person detection, cropping, description generation, matching, and ID assignment.
- Integrated YOLOv8 detector within LangGraph to crop person bounding boxes from each frame.
- Crafted structured JSON prompts for Qwen2.5-VL-3B-Instruct to extract rich semantic attributes (hair, clothing, face shape, accessories, etc.) from person crops.
- Built a persistent memory of {global\_id, description} pairs for all recognized and newly added identities.
- Implemented an LLM matcher node using Qwen2.5-7B-Instruct to compare new descriptions with memory and assign matches or new IDs.
- Logged detailed outputs for each match, including description, current memory, confidence, and reasoning, to support explainability and debugging.

### **Multimodal Learning for Chest X-Ray Interpretation**, PCVLab

Aug 2024 – Present

- Curated and preprocessed MIMIC-CXR from 377K images / 228K studies to 100K images / 50K studies, pairing frontal-lateral views with structured findings and impressions.
- Built and fine-tuned a multi-modal chest X-ray VLM (ViT encoder + GPT/LLaMA 3.2 via Unsloth) for joint image-report understanding and automated report generation.
- Built custom single-/dual-view dataset classes and implemented masked patching to boost visual feature learning.
- Scaled multi-GPU training on HPC clusters using Hugging Face Accelerate, CUDA, and SLURM.

### **Live Object Detection for German Market Products**, DAI-Labor

Jul 2023 – Sept 2023

- Conducted a comprehensive literature review to identify the best product recognition model.
- Collected and annotated **1,235** product images, expanded to **3,503** with augmentations in Freiburg Groceries Dataset using Roboflow.
- Developed a live web-camera object-detection model with Python and YOLOv8, achieving **87.2%** accuracy in identifying custom German supermarket products, with plans to guide users to the correct storage location.
- Integrated an OCR algorithm (Keras-OCR) with word slicing for German-labeled products.
- Evaluated model performance using confusion matrices, F1 scores, and loss graphs for comparison.

### **Serious Game for Children with Cerebral Palsy**, Sabanci University

Feb 2023 – Feb 2024

- Developed a serious game in Unity using C# for balance physiotherapy sessions in children with Cerebral Palsy.
- Collected live data from Wii Balance Board for each game session and stored it into MongoDB.
- Generated visual reports from the processed data using Python and Flask.

### **Spotify Music Artist Success Collaboration Network**, Sabanci University

Feb 2023 – June 2023

- Manually extracted and preprocessed artist, collaboration, and song data from Spotify and Kaggle.
- Built a collaboration network in Python using Networkx with 8624 artists (nodes) and 13318 connections (edges) incorporating genre, popularity, followers, and centrality metrics.
- Applied clustering and centrality algorithms to identify key influencers and measure success within the network.
- Visualized the network with Gephi and analyzed the network using Python visualization tools.

### **Agile Full Stack Software Development Project**, Sabanci University

Oct 2022 – Jan 2023

- Implemented a full stack web application including statistics, data for visualization, better referee assignments, and better GUI design for Turkish Football Federation using MongoDB, Express.JS, React.JS, Node.JS (MERN Stack).
- Gained hands-on experience with version control, scrum meetings, sprint management, deployment, and full stack web development from scratch, while improving teamwork skills.
- Conducted automated testing with Selenium, API documentation with Swagger, and web scraping.

## **Membership & Volunteer Work**

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**Hiphop Dancer** (2015–Present); **Board Member**, SuDance Club, Sabanci University (2019–2023); **Contestant**, Peak Games Unithon (2022); **Tutor**, Civic Involvement Project – 4th-grade students (2020)