

# Yasemin Ozkut

📍 Columbus, OH    ✉ ozkutyasemin@gmail.com    ☎ +1 614 702 03 62    🔗 yaseminozkut-portfolio.netlify.app/  
in linkedin.com/in/yaseminozkut    📄 github.com/yaseminozkut

## About Me

AI/ML enthusiast and MSc candidate, specializing in multimodal learning, vision-language models, and computer vision. Seeking a full-time internship for Autumn 2025 and 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>Sabancı 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, CUDA, YOLO, Keras-OCR, OpenCV, Unsloth, Hugging Face, Monai, 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, Object Detection, Segmentation, Image Processing, OOP

## Publications

<b>ERDES: A Benchmark Dataset for Retinal Detachment Classification in Spatiotemporal Ocular Ultrasound</b> , <i>Nature Scientific Data</i> 🔗	Under preparation July 2025
Pouyan Navard, <b>Yasemin Ozkut</b> , Sirikar Adhikari, Alper Yilmaz	

## Experience

<b>Photogrammetric Computer Vision Lab (PCVLab)</b> Graduate Research Assistant • Research on multi-modal learning, VLMs, and Computer Vision (see <b>Selected Projects</b> section for details).	Aug 2023 – Sept 2023 Columbus, OH
<b>DAI-Labor</b> Artificial Intelligence Researcher Intern • Built real-time object detection system for supermarket products (see <b>Selected Projects</b> section for details).	Jul 2023 – Sept 2023 Berlin, Germany
<b>Further Network</b> Software Developer Intern • 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.	Jul – Aug 2022 Istanbul, Turkey

## Projects

<b>ERDES Benchmark</b> , PCVLab 🔗	Jun 2025 – Present
• Debugged and extended an existing Lightning-Hydra training pipeline adapted by a colleague, enabling stable distributed training and flexible experimentation.	
• Generated stratified train/val/test splits for two binary tasks: Normal vs Retinal Detachment and Macula-Off vs On.	
• Tuned hyperparameters and trained 16 models across 8 architectures (ViT, UNETR, SwinUNETR, V-Net, UNet++, SENet154, 3D ResNet, and 3D UNet) to develop a two-stage diagnostic pipeline, achieving accuracy ranges of 0.937–0.991 (Normal vs. RD) and 0.725–0.882 (Macula status).	

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

Jul 2025

### Reasoning, Personal Project

- Designed a LangGraph workflow to sequence detection, cropping, description, 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 store of {global\_id, description} entries for all seen identities
- Implemented an LLM-based matcher node using Qwen2.5-7B-Instruct to compare new descriptions against memory and decide “match vs. new ID”
- Logged detailed “description, current memory, confidence + reasoning” outputs for each match to enable explainability and debugging

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

Aug 2024 – Present

- Curated and preprocessed MIMIC-CXR from 377 K images/228 K studies to 100 K images/50 K studies, pairing frontal-lateral views with structured findings/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, annotated, and augmented product images 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, Sabancı University (2019–2023); **Contestant**, Peak Games Unithon (2022); **Tutor**, Civic Involvement Project – 4th-grade students (2020)