Ozel Yilmazel he/him/his

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EDUCATION

University of Massachusetts Amherst | College of Information and Computer Sciences

Master of Science in Computer Science   Exp. Graduation May 2026 | GPA: 4.0
Bachelor of Science in Computer Science   Graduated May 2025 | GPA: 4.0

- **Coursework:** Advanced Algorithms, Applied Information Retrieval, Search Engines, Machine Learning, Applications of NLP, Artificial Intelligence, Information Systems, Web Applications
- **Awards and Honors:** Bay-State Fellowship, Phi Kappa Phi Honors, Summa Cum Laude

WORK EXPERIENCE

Center for Intelligent Information Retrieval – UMass Amherst   April 2025 – Present
Student Researcher   Amherst, MA

- Conducting research on personalization for cold-start settings in retrieval-augmented generation (RAG) systems, leveraging Stack Exchange data to model user behavior and develop cross-domain profiling techniques.
- Performed comprehensive experimental analysis to evaluate personalization models, deriving new research questions and insights. Presented findings at the CIIR Poster Series.

Initiative for Digital Public Infrastructure – UMass Amherst   February 2025 – September 2025
Student Researcher   Amherst, MA

- Investigated topic distributions on YouTube by applying clustering algorithms to large-scale video embedding datasets (~16,000 samples). Analyzed how embedding representations influence topic granularity and revealed structural patterns within the platform's content ecosystem.
- Developed a multilingual recommendation analysis pipeline using the YouTube Innertube API, generating recommendation trees to study cross-language exposure paths and user discovery patterns across linguistic boundaries.

Center for Data Science and Artificial Intelligence – UMass Amherst   May 2024 – May 2025
Researcher   Amherst, MA

- Built a machine learning pipeline for song recommendation using learning-to-rank models (XGBoost, scikit-learn) for the music therapy app *SingFit*, contributing to the associated academic publication.
- Designed and implemented a versatile text classification suite for large language models using LangChain, enabling rapid experimentation across multiple NLP tasks.
- Developed and deployed full-stack web annotation platforms for the NSF Buzzards Bay water preservation project and iNaturalist, leveraging React, PostgreSQL, and Azure cloud services. Supported environmental and biodiversity research by creating tools for data labeling and analysis.
- Fine-tuned geo-predictive models with PyTorch, utilizing user-generated labels from iNaturalist, improving species location inference accuracy.

College of Information and Computer Sciences – UMass Amherst   September 2022 – Present
Course Teaching Assistant   Amherst, MA

- **Teaching Assistant** for CS446: Search Engines, introduced and taught a new module on Retrieval-Augmented Generation, designed and implemented programming assignments, developed automated grading tools, and supported students through office hours.
- Served as an **Undergraduate Course Assistant** for CS121, CS230, and CS326, providing academic support to hundreds of students through office hours, project guidance, and grading assistance.
- Received the **Outstanding UCA Award** for excellence in teaching, communication, and collaboration across multiple semesters.

PROJECTS | github.com/oz03-hub

Natural Language Playlist Querying – Generating Spotify playlists with short queries   Fall 2025

- Designed and implemented a natural language playlist retrieval system, developing custom song embeddings and a dual-encoder retriever. Processed 100,000 playlists from Spotify, leveraging PyTorch and HuggingFace Transformers to train retrieval models.

OverMath – A math cooking game like OverCooked   Fall 2024

- Co-developed a Unity-based educational game; implemented Adversary AI, player controls, and projectile physics, contributing core gameplay mechanics in 5-person team.

SKILLS

Programming Languages: Python, JavaScript, Java, SQL, HTML/CSS, C#, C
Tools: PyTorch, pandas, NumPy, SciPy, matplotlib, scikit-learn, NLTK, XGBoost, HuggingFace, LangChain, MongoDB, Unity, Azure, PostgreSQL, SLURM, Git, Docker

PUBLICATIONS

- **Yilmazel O**., Zhu A., Navarrete P., Pogorelov S., Partridge V. iNatator: Obtaining Expert Feedback on Species Ranges. New England Computer Vision Workshop (NECV); November 2024; Yale University, New Haven.
- **Yilmazel O.**, McGrady R., Partridge V., Zuckerman E. YouTube Topic Modeling. Computational Social Science Poster Session 2025; May 2025; UMass Amherst, Amherst. **Winner of the People's Choice Award.**
- Myers, J. R., *et al.* Developing an equitable machine learning-based music intervention for older adults at-risk for Alzheimer's: Pilot findings for algorithm development and validation. *JMIR Aging; October 2025;* (submitted). (Contributor)