

# Tahira Kazimi

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## Introduction

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Ph.D. student in Computer Science at Virginia Tech specializing in Generative AI and Computer Vision, with a focus on advancing alignment, personalization and video/action understanding in generative systems. First-author at CVPR 2025 on interpretability of diffusion models; recognized as a *Rising Star* at MIT with background spanning reasoning agents, physically-grounded, diverse, and personalized video generation, and video reasoning. Prior experience with Gaussian Splatting, NeRF and diffusion-based 3D/4D rendering.

## Education

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**Virginia Tech (VA)**, Ph.D. in Computer Science August 2024 – Present

- GPA: 4.0/4.0
- Advisor: Prof. Pinar Yanardag (GEMLab website)
- **Coursework:** Generative Modeling, Interpretability, Representation Learning

**Middle East Technical University (METU) (TURKEY)**, BSc in Computer Engineering Sept 2019 – June 2024

- GPA: 3.5/4.0 (transcript)
- **Coursework:** Deep Learning, Artificial Intelligence, Data Structures, Algorithms, Operating Systems

## Publications

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**Explaining in Diffusion:** Explaining a Classifier Through Hierarchical Semantics with Text-to-Image Diffusion Models CVPR 2025

Tahira Kazimi, Ritika Allada, Pinar Yanardag

CVPR 2025

Project page

**Diverse Video Generation with Determinantal Point Process-Guided Policy Optimization** Under review

Tahira Kazimi, Connor Dunlop, Pinar Yanardag

Under review

Project page

**Bandit-GRPO: Bandit-in-the-loop policy optimization for preference-aligned video generation** Under review

Connor Dunlop, Tahira Kazimi, Pinar Yanardag

Under review

**Diverse Video Generation with Collaborative Agents** IEEE CAI 2026, ICCV 2025 workshop

Tahira Kazimi, Heather Yu, Zhiqiang Lao

ICCV 2025 workshop

**Audit & Repair:** An Agentic Framework for Consistent Story Visualization in Text-to-Image Diffusion Models ICCV 2025 workshop

Kiymet Akdemir\*, Tahira Kazimi\*, Pinar Yanardag

ICCV 2025 workshop

Project page

## Experience

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**PhD Researcher**, Virginia Tech – Blacksburg, VA Aug 2024 – Present

- Conducting research on post-training and alignment methods for Large Language Models, focusing on



personalization, diversity, and reward-driven optimization.

- Led and co-authored multiple projects on interpretability and agentic generative systems, resulting in publications at **CVPR 2025** and **ICCV 2025** (see Publications).

**Generative AI and Computer Vision Intern**, Futurewei Technologies – Basking Ridge, NJ

May 2025 – August 2025

- Developed a reasoning planning agentic system that deploys models as tools to enhance the visual diversity in generated outputs.
- Demonstrated that the proposed pipeline outperforms existing baselines in both diversity and visual quality by **15–20%**, enabling richer creative outputs for content generation workflows, while preserving semantic consistency (**ICCV'25 workshop**).

**Research and Development Engineer**, IKON ARGE Teknoloji – Ankara, TURKEY

Jan 2024 – Aug 2024

- Engineered an LLM-powered virtual assistant system to manage visitor interactions at office entrances, automating the process of routing visitor requests to appropriate departments and notifying the correct employee.
- Developed reinforcement learning agents capable of detecting goal positions from a signal sent from goal position, utilizing Proximal Policy Optimization (PPO).
- Trained and implemented an Automatic Plate Detection model on NVIDIA JETSON hardware to enable real-time processing and object recognition using Yolov8.

**Undergraduate Research Assistant**, Image Processing and Pattern Recognition Lab – Ankara, TURKEY

Sept 2023 – May 2024

- Principal investigator: Prof. Emre Akbas (personal website)
- Conducted research on texture bias in ImageNet-trained models, developing shape-based object recognition models that utilized 3D shape representations for recognition tasks using NeRF and Gaussian Splatting.
- Developed a segmentation model for medical image analysis improving segmentation accuracy and adaptability across diverse datasets.

**Research Intern**, TUBITAK – Ankara, TURKEY

July 2023 – Sept 2023

- Principal investigator: Prof. Sinan Kalkan (personal website)
- Conducted photovoltaic energy estimation from solar panels using time-series deep learning models, enhancing forecasting accuracy and supporting more reliable energy output predictions for renewable energy systems.
- Trained Long Short-Term Memory (LSTM) and Neural Hierarchical Interpolation for Time Series (N-HiTs) models on photovoltaic energy datasets.

## Academic Activities and Awards

**Intern Award, IC lab:** Received the *Best Intern Award* in recognition of outstanding research impact and technical contributions.

Dec 2025

**Rising Star MIT:** Selected to present latest research at MIT as part of the Rising Star program, with an acceptance rate of **20%**.  
Selected awardee page

Sept 2025

**Reviewer** AAAI, CVPR, CVPR Responsible GenAI Workshop  
Workshop Page

2024 - Present

**P13N Workshop Organizer and Reviewer**, ICCV Personalization in Generative AI  
Workshop  
Workshop Page

June 2025

## Projects

**SilhouetteNet: Shape-based object recognition**

poster link

- Research project developed as part of the guided research course at METU
- Tackled texture bias in ImageNet-trained CNN models by developing classifiers capable of recognizing objects based solely on their physical shape, independent of texture information. This new pipeline was based on an



R-CNN instance segmentation architecture.

- Enhanced model performance by 15% through fine-tuning ImageNet-trained models using image-level labels in a semi-supervised learning framework.
- Demonstrated that ImageNet-pretrained models possess the capacity to learn shape representations when explicitly provided with shape-based input.

#### **Planify: AI scheduler**

[project website](#)

- Collaborated with a team of five to develop a personalized AI-driven scheduler application aimed at effectively organizing users' schedules based on preferences learned from their app interactions.
- Collaborated in developing the objective function for optimizing and scheduling the tasks for one week using constraint programming.
- Designed the chatbot for adding events into calendar using text and voice commands with text extraction models.
- Assisted with front-end development in React Native using Node.js, creating the app's functionality in JavaScript, employed HTML for webpage structure and CSS for formatting and styling, ensuring a clean, user-friendly interface.
- Tools Used: Google's OR-Tools, Flask, React

#### **Technologies**

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**Languages:** C++, C, Java, Python, SQL, PyTorch, CUDA, Docker, Git, Object Detection, Semantic/instance segmentation

**Technologies:** Programming & Tools: Python, C++, Java, SQL, CUDA, Docker, Git  
ML/AI Frameworks: PyTorch, Diffusion Models, RL, NLP, CV (YOLO, R-CNN, UniverSeg)

**Languages:** Dari, English, Turkish