

# Tahira Kazimi

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## Introduction

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

<b>Virginia Tech (VA)</b> , Ph.D. in Computer Science	August 2024 – Present
• GPA: 4.0/4.0	
• Advisor: Prof. Pinar Yanardag (GEMLab website)	
• <b>Coursework:</b> Generative Modeling, Interpretability, Representation Learning	
<b>Middle East Technical University (METU) (TURKEY)</b> , BSc in Computer Engineering	Sept 2019 – June 2024
• GPA: 3.5/4.0 (transcript)	
• <b>Coursework:</b> Deep Learning, Artificial Intelligence, Data Structures, Algorithms, Operating Systems	

## Publications

<b>Explaining in Diffusion:</b> Explaining a Classifier Through Hierarchical Semantics with Text-to-Image Diffusion Models	CVPR 2025
<b>Tahira Kazimi</b> , Ritika Allada, Pinar Yanardag	
<b>CVPR 2025</b>	
Project page	
<b>Diverse Video Generation with Determinantal Point Process-Guided Policy Optimization</b>	Under review
<b>Tahira Kazimi</b> , Connor Dunlop, Pinar Yanardag	
Under review	
Project page	
<b>Bandit-GRPO: Bandit-in-the-loop policy optimization for preference-aligned video generation</b>	Under review
Connor Dunlop, <b>Tahira Kazimi</b> , Pinar Yanardag	
Under review	
<b>Diverse Video Generation with Collaborative Agents</b>	IEEE CAI 2026, ICCV 2025 workshop
<b>Tahira Kazimi</b> , Heather Yu, Zhiqiang Lao	
<b>ICCV 2025 workshop</b>	
<b>Audit &amp; Repair: An Agentic Framework for Consistent Story Visualization in Text-to-Image Diffusion Models</b>	ICCV 2025 workshop
Kiymet Akdemir*, <b>Tahira Kazimi*</b> , Pinar Yanardag	
<b>ICCV 2025 workshop</b>	
Project page	

## Experience

<b>PhD Researcher</b> , 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 <b>CVPR 2025</b> and <b>ICCV 2025</b> (see Publications).	
<b>Generative AI and Computer Vision Intern</b> , 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 <b>15–20%</b> , enabling richer creative outputs for content generation workflows, while preserving semantic consistency ( <b>ICCV'25 workshop</b> ).	
<b>Research and Development Engineer</b> , 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.	
<b>Undergraduate Research Assistant</b> , 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.	
<b>Research Intern</b> , 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.	
<b>Academic Activities and Awards</b>	
<b>Intern Award, IC lab:</b> Received the <i>Best Intern Award</i> in recognition of outstanding research impact and technical contributions.	Dec 2025
<b>Rising Star MIT:</b> Selected to present latest research at MIT as part of the Rising Star program, with an acceptance rate of <b>20%</b> . Selected awardee page	Sept 2025
<b>Reviewer</b> AAAI, CVPR, CVPR Responsible GenAI Workshop Workshop Page	2024 - Present
<b>P13N Workshop Organizer and Reviewer</b> , ICCV Personalization in Generative AI Workshop Workshop Page	June 2025
<b>Projects</b>	
<b>SilhouetteNet: Shape-based object recognition</b>	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