

Ali Asgarov

📍 Blacksburg, VA, US ✉ aliasgarov@vt.edu ☎ +1 540-934-8704 in aliasgarov 🌐 aliasgerovs
🎓 Ali Asgarov 🌐 aliasgerovs.github.io

Research Interests

I work in the areas of computer vision and natural language processing, with a primary focus on multimodal learning and vision-language models. My research interests include:

- Reasoning in vision-language models
- Cross-modal retrieval across images, text, video, and audio
- Structured information extraction from multimodal data
- Knowledge representation for multimodal reasoning

Education

Virginia Tech Aug 2024 – Present

PhD in Computer Science

- **GPA:** 4.0/4.0
- **Advisor:** Dr. Chris Thomas
- **Coursework:** Multimodal Vision, Comparison of Learning Algorithms

George Washington University Aug 2022 – Dec 2023

MSc in Computer Science

- **GPA:** 3.76/4.0
- **Advisor:** Dr.Rebecca Hwa & Dr.Samir Rustamov
- **Coursework:** Machine Learning, Neural Networks & Deep Learning, Cloud Computing, Artificial Intelligence, Big Data & Analytics, Database Management Systems, Advanced Software Paradigms, Computer System Architecture, Design & Analysis of Algorithms

Baku Higher Oil School Aug 2017 – May 2022

BEng in Automation Engineering

- **GPA:** 91/100
- **Advisor:** Dr.Ali Parsayan
- **Coursework:** Calculus I , Calculus II, Calculus III, Numerical Methods, Algorithms and Data Structures I, Algorithms and Data Structures II, Algorithms and Data Structures III, Image Pattern Recognition

Experience

Machine Learning Engineer Austin, TX

Polygraf AI

Dec 2023 – Aug 2024

- Achieved a **92% F1** score detecting AI-generated content via fine tuning transformer based language models on AWS SageMaker, Lambda, and GCP, while training **multimodal language models** to detect audio, image, and video deepfakes.

Machine Learning Engineer Amsterdam, NL

Revenue AI

Feb 2022 – Aug 2022

- Improved decision-making processes by deploying machine learning models like **anomaly detection, classification, regression, video summarization** and optimizing data pipelines using Azure services.

Machine Learning Engineer Middletown, DE

Voiceloft

Jan 2021 – Feb 2022

- Achieved **93% ASR** accuracy (**23%** higher than Google Translate) by developing models for low-resource languages using PyTorch, Kaldi, collecting diverse data, and fine-tuning for 11 English accents.

Publications

- ENTER (v2): Event Based Interpretable Reasoning for VideoQA**, Hammad Ayyubi, Junzhang Liu, Ali Asgarov, Zaber Ibn Abdul Hakim, and others. May 2025
Under Review, **COLM 2025**
- Advancing Public Safety Video Sensemaking with Ground Robot Footage: A Human-Centered Approach**, Multimodal Algorithmic Reasoning Workshop, Puqi Zhou, Ali Asgarov, Aafiya Hussain, and others. May 2025
Under Review, **CSCW 2025**
- ENTER: Event Based Interpretable Reasoning for VideoQA**, Hammad Ayyubi, Junzhang Liu, Ali Asgarov, Zaber Ibn Abdul Hakim, and others. Oct 2024
MAR, **NeurIPS 2024** [Spotlight Paper](#) [🔗](#)
- LowCLIP: Adapting the CLIP Model Architecture for Low-Resource Languages in Multimodal Image Retrieval Task** June 2024
Under Review, **COLING 2025**
Ali Asgarov, Samir Rustamov
[paper](#) [🔗](#)
- 3D-CNNs-Based Touchless Human-Machine Interaction** Sep 2023
International Conference on Interactive Collaborative Robotics, **ICR 2023**, Springer, Berlin
Ali Asgarov, Ali Parsayan
[paper](#) [🔗](#)

Honors & Awards

- 2022** State Program on Education of Azerbaijani Youth Abroad Scholarship
2022 1st Place (3x), National AI Competition in ML Applications (2020–2022)
2020 Ranked among the top 15 teams at the III World Robot Olympiad in Győr, Hungary
2019 Gold Medal at the III World Robot Olympiad in Azerbaijan
2018 **Presidential Scholarship** for Exceptional Academic Performance
2017 Scored 690 out of 700 on the University Entrance Exam
2017 High School Graduate with a Gold Medal, placing in the top 0.1% among 90,000 graduating students

Patents

- US Patent Application No. 4883-5431-3873 (2024)** [🔗](#): System and Method for Identifying and Determining a Content Source.

Technologies

- Languages:** **Python**, C/C++, **SQL (Postgres)**, JavaScript, HTML/CSS, **R**, **Matlab**, **Scala**
Frameworks: **PyTorch**, **TensorFlow**, Keras, **FastAPI**, Flask, **Docker**, Mllib, Apache Spark, Apache Hadoop
Cloud Technologies: Amazon Web Services, Microsoft Azure, Google Cloud AI Platform
Libraries: Hugging Face Transformers, Sentence Transformers, OpenCV, Pandas, NumPy, Scikit-learn, NLTK, Spacy, Plotly, Matplotlib, Gradio, Streamlit
Bold = Expert, Underlined = Intermediate.

Teaching

- 2024, Fall** CS5644: Machine Learning with Big Data, Virginia Tech
2025, Spring CS3114: Data Structures Algorithms, Virginia Tech

Languages

- English** (fluent) **Turkish** (fluent) **Azerbaijani** (native)