

# Ali Asgarov

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## RESEARCH INTERESTS

I work on computer vision and natural language processing with a focus on multimodal learning, including vision-language reasoning, cross-modal retrieval, and structured information extraction.

## EDUCATION

<b>Virginia Tech, PhD in Computer Science, GPA: 4.0/4.0</b>	<i>Aug 2024 – Present</i>
Advisor: Dr. Chris Thomas	<i>Blacksburg, VA</i>
Coursework: Multimodal Vision, Natural Language Processing, Statistics in Research.	
<b>George Washington University, MSc in Computer Science, GPA: 3.76/4.0</b>	<i>Aug 2022 – Dec 2023</i>
Advisors: Dr. Rebecca Hwa and Dr. Samir Rustamov	<i>Washington, DC</i>
Coursework: Machine Learning, Neural Networks and Deep Learning, Cloud Computing, AI, Big Data and Analytics.	
<b>Baku Higher Oil School, BEng in Automation, GPA: 91/100</b>	<i>Aug 2017 – May 2022</i>
Advisor: Dr. Ali Parsayan	<i>Baku, Azerbaijan</i>
Coursework: Calculus I–III, Numerical Methods, Algorithms and Data Structures I–III, Image Pattern Recognition.	

## EXPERIENCE

<b>Machine Learning Engineer, Polygraf AI</b>	<i>Texas, USA / Dec 2023 – Aug 2024</i>
Built multimodal deepfake detection models for text, image, audio, and video by fine-tuning transformer-based models using PEFT methods (LoRA, QLoRA, prompt tuning). Achieved 92% F1 with 97% recall on high-risk content through improved data and evaluation pipelines. Deployed <100 ms inference on SageMaker, Lambda, and Vertex AI, serving 25k users.	
<b>Machine Learning Engineer, Revenue AI</b>	<i>Amsterdam, Netherlands / Feb 2022 – Aug 2022</i>
Built ML models and data pipelines for anomaly detection, classification, forecasting, and video summarization on Azure ML and Synapse. Improved data ingestion and processing latency from 1 hour to <10 minutes and automated monitoring and retraining to keep models up to date. Led delivery of ML solutions and pipelines for partners including PepsiCo, P&G, and MuSigma.	
<b>Machine Learning Engineer, Voiceloft AI</b>	<i>Delaware, USA / Jan 2021 – Feb 2022</i>
Developed multilingual ASR models for low-resource English accents using PyTorch and Kaldi, leveraging Kaldi for data preparation and alignment and PyTorch for model training. Fine-tuned wav2vec 2.0 and XLS-R to achieve 93% accuracy (23% above baseline benchmarks). Deployed robust ASR models on Kubernetes with autoscaling and monitoring, supporting 30k users at 99.8% uptime.	

## PUBLICATIONS

NEST Narrative Event Structures in Time for Long Video Understanding	<i>Oct 2025</i>
A. Asgarov, K. Narasimhan, N.H. Sarker, S. Mallampati, A. Sivakumar, C. Thomas   Under Review, ACL ARR 2026 <a href="#">paper</a> <a href="#">🔗</a>	
Benchmarking and Mitigating MCQA Selection Bias of Large Vision Language Models	<i>Sep 2025</i>
M. Atabuzzaman, <a href="#">A. Asgarov</a> , C. Thomas   <a href="#">Accepted</a> , EMNLP 2025 Main <a href="#">paper</a> <a href="#">🔗</a>	
SIGMA Search Augmented On Demand Knowledge Integration for Agentic Mathematical Reasoning	<i>Aug 2025</i>
A. Asgarov, U. Suleymanov, A. Khatri   <a href="#">Accepted</a> , AAAI 2026 LMReasoning <a href="#">paper</a> <a href="#">🔗</a>	
Advancing Public Safety Video Sensemaking with Ground Robot Footage	<i>May 2025</i>
P. Zhou, <a href="#">A. Asgarov</a> , A. Hussain et al.   Under Review, CHI 2026 <a href="#">paper</a> <a href="#">🔗</a>	
ENTER Event Based Interpretable Reasoning for VideoQA	<i>Oct 2024</i>
H. Ayyubi, J. Liu, A. Asgarov, Z.I.A. Hakim et al.   <a href="#">Accepted</a> , <a href="#">Spotlight</a> , NeurIPS 2024 MAR <a href="#">paper</a> <a href="#">🔗</a>	
LowCLIP Adapting CLIP for Low Resource Languages in Image Retrieval	<i>June 2024</i>
A. Asgarov, S. Rustamov   Under Review <a href="#">paper</a> <a href="#">🔗</a>	
3D CNNs Based Touchless Human Machine Interaction	<i>Sep 2023</i>
A. Asgarov, A. Parsayan   <a href="#">Accepted</a> , ICR 2023, Springer <a href="#">paper</a> <a href="#">🔗</a>	

## TECHNICAL SKILLS

**Languages:** Python, C/ C++, SQL, JavaScript, R, MATLAB  
**Libraries:** HuggingFace, OpenCV, Pandas, NumPy, Scikit-learn, NLTK, SpaCy  
**Frameworks:** PyTorch, TensorFlow, FastAPI, Docker, Spark, Hadoop  
**Cloud:** AWS, Azure, GCP

## PATENTS

**US Patent App.** 4883 5431 3873 2024 [🔗](#) System and Method for Identifying and Determining a Content Source.

## SERVICE, TEACHING & LANGUAGES

**Teaching:** CS3114 Data Structures and Algorithms (Spring 2025) and CS5644 ML with Big Data (Fall 2024)

**Reviewing:** ACM TIST 2025, EMNLP 2025, WACV 2026, CVPR 2026

**Languages:** English (fluent), Turkish (fluent), Azerbaijani (native)

## HONORS AND AWARDS

<b>2025</b> Pratt Fellowship, Virginia Tech <a href="#">🔗</a>
<b>2023</b> State Scholarship for Azerbaijani Youth Abroad <a href="#">🔗</a>
<b>2020–2022</b> , <b>1<sup>st</sup></b> Place (3×) National AI Competition <a href="#">🔗</a>
<b>2020</b> , Top 15 World Robot Olympiad, Hungary <a href="#">🔗</a>
<b>2019</b> , Gold Medal, National Robot Olympiad, Azerbaijan <a href="#">🔗</a>
<b>2018</b> Presidential Scholarship <a href="#">🔗</a>
<b>2017</b> University Entrance Exam 690/700
<b>2017</b> High School Graduation with Gold Medal (Top 0.1%)