Ali Asgarov

Blacksburg, VA | +1-540-934-8704 | aliasgarov@vt.edu
linkedin.com/in/ali-asgarov | github.com/aliasgerovs | Google Scholar | aliasgerovs.github.io

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

Virginia Tech, PhD in Computer Science, GPA: 4.0/4.0 *Aug 2024 – Present*
Advisor: Dr. Chris Thomas *Blacksburg, VA*
Coursework: Multimodal Vision, Natural Language Processing, Statistics in Research.

George Washington University, MSc in Computer Science, GPA: 3.76/4.0 *Aug 2022 – Dec 2023*
Advisors: Dr. Rebecca Hwa and Dr. Samir Rustamov *Washington, DC*
Coursework: Machine Learning, Neural Networks and Deep Learning, Cloud Computing, AI, Big Data and Analytics.

Baku Higher Oil School, BEng in Automation, GPA: 91/100 *Aug 2017 – May 2022*
Advisor: Dr. Ali Parsayan *Baku, Azerbaijan*
Coursework: Calculus I–III, Numerical Methods, Algorithms and Data Structures I–III, Image Pattern Recognition.

Experience

Machine Learning Engineer, Polygraf AI *Texas, USA | Dec 2023 – Aug 2024*
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.

Machine Learning Engineer, Revenue AI *Amsterdam, Netherlands | Feb 2022 – Aug 2022*
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.

Machine Learning Engineer, Voiceloft AI *Delaware, USA | Jan 2021 – Feb 2022*
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 *Oct 2025*
A. Asgarov, K. Narasimhan, N.H. Sarker, S. Mallampati, A. Sivakumar, C. Thomas | Under Review, ACL ARR 2026 paper

Benchmarking and Mitigating MCQA Selection Bias of Large Vision Language Models *Sep 2025*
M. Atabuzzaman, A. Asgarov, C. Thomas | **Accepted**, EMNLP 2025 Main paper

SIGMA Search Augmented On Demand Knowledge Integration for Agentic Mathematical Reasoning *Aug 2025*
A. Asgarov, U. Suleymanov, A. Khatri | **Accepted**, AAAI 2026 LMReasoning paper

Advancing Public Safety Video Sensemaking with Ground Robot Footage *May 2025*
P. Zhou, A. Asgarov, A. Hussain et al. | Under Review, CHI 2026 paper

ENTER Event Based Interpretable Reasoning for VideoQA *Oct 2024*
H. Ayyubi, J. Liu, A. Asgarov, Z.I.A. Hakim et al. | **Spotlight**, NeurIPS 2024 MAR paper

LowCLIP Adapting CLIP for Low Resource Languages in Image Retrieval *June 2024*
A. Asgarov, S. Rustamov | Under Review paper

3D CNNs Based Touchless Human Machine Interaction *Sep 2023*
A. Asgarov, A. Parsayan | **ICR 2023**, Springer paper

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

Honors and Awards

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

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)