

Alibay Osmanli

London, UK

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RESEARCH EXPERIENCE

Queen Mary University of London

London, UK

PhD Researcher - World Models and Physical AI

2025 - Present

- Develop physically grounded Video-LLM benchmarks for evaluating causal dynamics, kinematics, temporal grounding, spatial grounding, and object properties.
- Designed texture-ablation experiments using bilateral filtering to separate reliance on physical dynamics from reliance on semantic or appearance cues.
- Investigate representation learning and token allocation methods, including V-JEPA, Titan, and adaptive projection for physically informative video tokens.

PUBLICATIONS AND SUBMISSIONS

Grounding Video Reasoning in Physical Signals

Alibay Osmanli, Zixu Cheng, Shaogang Gong. *arXiv:2604.21873*, 2026. Accepted to CVPR VidLLMs Workshop 2026.

- Introduces a benchmark for object-level, temporal, and spatial physical understanding across four video sources, six physics domains, three prompt families, and four perturbation conditions.

OVET-Consensus: Rank-Preserving Counterfactual Event Verification for Video Moment Grounding

Alibay Osmanli, Shaogang Gong. Submitted to BMVC 2026, under review.

- Studies rank-preserving counterfactual event verification for video moment grounding.

TEACHING EXPERIENCE

Queen Mary University of London

London, UK

Demonstrator - Machine Learning

Sept 2025 - Feb 2026

- Supported lab and practical sessions by explaining machine learning concepts, debugging student implementations, and answering coursework questions.
- Marked coursework and exam submissions using assessment rubrics and provided clear feedback on modelling, implementation, and evaluation.

Queen Mary University of London

London, UK

Demonstrator - Deep Learning and Computer Vision (MSc modules)

Feb 2026 - Present

- Support MSc students in deep learning and computer vision labs, covering model design, implementation, evaluation, and conceptual questions.
- Created and ran an online assessment website for the computer vision module; modified coursework materials to improve assessment delivery.
- Delivered two computer vision lectures on diffusion models, covering core concepts and model behaviour.
- Grade coursework and exam submissions with consistent rubrics and constructive technical feedback.

EDUCATION

Queen Mary University of London

London, UK

MSc Artificial Intelligence (Computer Vision and Robotics)

2024 - 2025

- Specialised in computer vision, machine learning, deep learning, and cognitive robotics.
- Completed MSc thesis on uncertainty-guided learning for multimodal medical image segmentation.

Koç University

Istanbul, Turkey

BSc Computer Engineering

2020 - 2024

- Awarded 50% Merit Scholarship.

INDUSTRY EXPERIENCE

Uniser Group PLC / Payriff CJSC

Baku, Azerbaijan

Frontend Engineering Intern (Angular & React)

July 2023 - Sept 2023

- Built responsive web application features and integrated APIs for payment-system workflows.
- Collaborated on frontend implementation across Angular and React codebases, improving usability and maintainability.

Azersun Holding

Baku, Azerbaijan

Software Development Intern

July 2022 - Aug 2022

- Implemented features for internal tools and improved workflows used by business teams.

SELECTED PROJECTS

Object Detection in Dynamic Environments

- Designed computer vision methods for vehicle counting in road scenes, with emphasis on small and distant objects.

Augmented Reality (AR) Indoor Navigation

- Developed an AR campus navigation app leveraging real-time spatial data processing and feature extraction.

Multimodal Medical Image Segmentation

- Built uncertainty-guided learning pipelines and U-Net architectures for cell and organ segmentation tasks.

TECHNICAL SKILLS

- **AI & ML:** Deep Learning, Computer Vision, Video-LLMs, Video Moment Grounding, Generative Models, Multimodal Learning, World Models, Physical AI, Medical Image Segmentation.
- **Frameworks:** PyTorch, TensorFlow, JAX, NumPy, Pandas, OpenCV.
- **Tools:** Python, Git, Docker, AWS, Google Cloud, Jupyter Notebooks, LaTeX.
- **Teaching & Assessment:** Lab demonstrating, coursework modification, online assessment delivery, rubric-based marking.
- **Languages:** English, Russian, Azerbaijani, Turkish.