Mikael Yeghiazaryan

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Education

University of Oxford — Oxford, UK
Master of Engineering Science (MEng) — *October 2021 – June 2022*

- Graduated with First Class Honours; ranked 15th out of 159.
- Awarded the Swire Scholarship for outstanding academic achievement.

University of Oxford — Oxford, UK
Bachelor of Engineering Science (BEng) — *October 2018 – June 2021*

Work Experience

Researcher — Yerevan, Armenia
Center for Scientific Innovation and Education — *October 2025 – January 2025*

- Led a research project on verifiably safe autonomous systems.
- Lectured a course on Computer Vision.

Research Assistant — Urbana-Champaign, IL, USA
Advanced Controls Research Laboratory, University of Illinois Urbana-Champaign — *July 2024 – June 2025*

- Supervised by Dr. Naira Hovakimyan.

Research Assistant — Pittsburgh, PA, USA
Robotics Institute, Carnegie Mellon University — *September 2022 – July 2024*

- Supervised by Dr. Fernando De La Torre and Dr. Jessica Hodgins.

Research Assistant — Oxford, UK
Engineering Department, University of Oxford — *November 2021 — January 2022*

- Supervised by Dr. Min Chen (University of Oxford).

Research Intern — Oxford, UK
Oxford Robotics Institute, University of Oxford — *June 2021 — August 2021*

- Supervised by Dr. Maurice Fallon (ORI).

Research Projects & Publications

IEEE International Conference on Image Processing (ICIP) 2025 — September 2025

- Title: *Texture- and Shape-based Adversarial Attacks for Overhead Image Vehicle Detection.*
- Authors: Mikael Yeghiazaryan, Sai Abhishek Siddhartha Namburu, Emily Kim, Stanislav Panev, Celso de Melo, Fernando De la Torre, Jessica Hodgins.
- Developed and evaluated physically realizable adversarial attack strategies for aerial vehicle detectors, balancing attack effectiveness with real-world texture and shape constraints.

AIAA Aviation Forum and Exposition 2025 — July 2025

- Title: *AirTaxiSim: A Simulator for Autonomous Air Taxis.*
- Authors: Ayoosh Bansal*, Mikael Yeghiazaryan*, Hyung-Jin Yoon*, Duo Wang, Petros Voulgaris, Naira Hovakimyan, Lui Sha. (* – equal contribution)
- Developed *AirTaxiSim*, a high-fidelity simulation framework for evaluating and benchmarking autonomous air-taxi operations in complex urban environments.

AIAA SciTech Forum and Exposition 2025 — January 2025

- Title: *Verification and Validation of a Vision-Based Landing System for Autonomous VTOL Air Taxis.*
- Authors: Ayoosh Bansal*, Duo Wang*, Mikael Yeghiazaryan*, Yangge Li, Chuyuan Tao, Hyung-Jin Yoon, Prateek Arora, Christos Papachristos, Petros Voulgaris, Sayan Mitra, Lui Sha, Naira Hovakimyan. (* – equal contribution)
- Developed a formal verification and validation framework leveraging high-fidelity simulation to evaluate the safety of a vision-based landing system for autonomous VTOL air taxis operating in cluttered urban environments.

Augmenting Aerial Imagery using Vision-Language Models | *CMU* — September 2023 – December 2024

- Supervision: Dr. Fernando De la Torre and Dr. Jessica Hodgins.

- Developing methods to enhance aerial and satellite imagery for vehicle detection by leveraging diffusion and vision-language models (e.g., Stable Diffusion). Conducting adversarial analyses of generative models to assess robustness and explain detector behavior using language.

4th year Master Thesis Project | *University of Oxford* September 2021 – June 2022

- Title: Learning generalizable keypoints for object pose estimation.
- Supervision: Dr. Joao Henriques and Dr. Dylan Campbell (Visual Geometry Group, University of Oxford).
- Developed a method for unseen object pose estimation using generalizable features and low-resolution CAD models.

3rd year Group Project | *University of Oxford* September 2020 – May 2021

- Title: Formula Student Electric Vehicle (EV) Race Car Design.
- Supervision: Dr. Dan Rogers (University of Oxford).
- Designed the electronics and control systems for a Formula Student electric race car.

Honours and Awards

1st Class Honours Oxford, UK
University of Oxford *October 2018 – June 2022*

- I achieved and graduated with 1st Class Honours (equivalent to 4.0 GPA) in all years of examinations at the University of Oxford.
- Awarded the Swire Scholarship for exceptional academic performance at my college (University College Oxford).

Honorable mention in The International Physics Olympiad Jogjakarta, Indonesia
International Physics Olympiad, 2017 *July 2017*

Silver medal in The International Zhautykov Olympiad (Physics) Almaty, Kazakhstan
International Zhautykov Olympiad, 2017 *January 2017*

Community & Leadership

Secretary and President of the Oxford University Armenian Society Oxford, UK
Oxford University Armenian Society (OUAS) *October 2020 – June 2022*

- I set up events for the society members.
- I engaged in the promotion of the society's events at the university level.

Lecturer of Engineering Science Yerevan, Armenia
"Quantum" Gymnasium *August 2019*

- I lectured engineering of electronics at my alma mater's summer camp for high school students.

President of the Experimental Physics Club Yerevan, Armenia
"Quantum" Gymnasium *October 2016 – March 2018*

- I founded a club for conducting experiments in physics and helped other students with their assignments.

Skills

Programming: Python, C/C++, MATLAB.
Machine Learning: PyTorch, Transformers, CLIP, Diffusion Models, TensorFlow, Keras, scikit-learn, pandas.
Computer Vision & Graphics: OpenCV, NumPy, PyTorch3D, Kaolin, Blender, CARLA, PyBullet.
Systems & Tools: Linux (Ubuntu), Git, ROS, Docker, Anaconda, Flask, AWS, PostgreSQL, Arduino, Raspberry Pi, LaTeX.
Research: Critical thinking, teamwork, technical communication, presentation, and clean coding.

Miscellaneous

Languages: Armenian (native), Russian (native), Belarusian (native), English (fluent).
Music: Violinist since age 6; laureate of international competitions; performed at Vladimir Spivakov's festival at age 10.
Chess: Achieved Class A Elo ranking at age 12, now playing recreationally (Lichess ID Michael_Yeghiazaryan).