

# DILARA ALBAYRAK, MSC

SOFTWARE DEVELOPER • RESEARCH ENGINEER



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📍 UK, open to relocation

## SKILLS

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**Programming Tools:** C++, C#, Python, PyTorch, NumPy, OpenCV

**Visual Computing:** Rendering Pipelines, Shader Programming, Computer Vision, DirectX 11, Vulkan, 3D Mesh Representations, Multi-View Geometry,

**Frameworks:** Unity, XR Development (HTC Vive, Quest 3), GDAL, Tobii Eye Tracker SDK, Visual Studio, Agile Methodologies (Jira and Azure Scrum), Git Version Control

**Project & Research Skills:** International Cooperation, Multidisciplinary Collaboration, Technical and Academic Writing (e.g. EU Project Proposals, Academic Publications)

## EXPERIENCE

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University of Manchester

📍 United Kingdom

*Research Software Engineer*

📅 Feb 2026 – Now

- Using .NET and agentic AI frameworks (Semantic Kernel, LangGraph) to streamline UK-wide environmental decision support.
- Developing AI-integrated geospatial pipelines and vector databases (PostGIS, Qdrant) to enable advanced RAG and analysis of large-scale climate and health datasets.

University of Hull

📍 United Kingdom

*MSc Student in Computer Science*

📅 Sep 2024 – Sep 2025

- A [dissertation](#) focused on high-fidelity **lunar mesh rendering in VR**, utilising **GDAL** and using **GeoTIFF** data and **Vulkan** API, with custom shaders to optimise performance and realism.
- Coursework includes advanced modules in **Real-Time Graphics with DirectX**, **Physics Simulation**, and **C++ Programming** for Game Programming, strengthening low-level rendering and simulation skills.
- Collaborated in a team project (Virtual Moon), heavily worked on **mesh generation**, **texture optimisation**, and **3D visualisation strategies** for mixed reality environment (Quest 3).

Setur

📍 Turkey

*R & D Software Engineer*

📅 Feb 2021 – Aug 2024 (full-time)

since Aug 2024 – part-time

- Contributed to the application of an **ITEA** project call and **EUREKA** project call (Turkey-Spain collaboration), recently accepted
- Technical documentation writing and **Consortium Lead** for **EU-funded project applications** in **XR & Cultural Heritage 3D digitisation**.

- Contributed to many projects as a software developer, such as [a project](#) funded by CELTIC-NEXT, I processed flight data using **Python** to generate predictive trip duration models.
- Software development with **Python**, processing **Flight data** (GDS data, Sabre and Amadeus).

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### Mobirob

📍 Turkey

*Computer Vision Engineer*

📅 Feb 2019 – Nov 2020

- Developed a multi-view object detection pipeline processing large-scale 3D visual data using **Python**, **NumPy**, **OpenCV**, and **PyTorch**. Used domain randomisation as **domain adaptation technique** in a synthetic-to-real image recognition pipeline.  
<https://github.com/DilaraAlbayrak/manufacturing-part-recognition>
- Trained and fine-tuned deep learning models on multi-view images using PyTorch
- Implemented computer vision solutions for skeleton and hand **detection**, enabling real-time **tracking** of human motion.

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### Hacettepe University

📍 Turkey

*MSc Research Student*

📅 Feb 2018 – Feb 2019

- Designed and conducted user studies with **Tobii eye-trackers** and **HTC Vive** to collect and analyse gaze data for a visual saliency study in **Unity-based** VR environments.  
<https://ieeexplore.ieee.org/abstract/document/8919045>
- Worked as a Teaching Assistant in programming labs of Computer Science courses.

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### Alabanda Tourism

📍 Turkey

*Software Developer*

📅 Oct 2016 – Dec 2017

- Developed and maintained web applications and internal tools using **ASP.NET** for a mid-sized enterprise.
- Implemented backend logic and **database interactions** for the company's e-commerce website and internal ERP system.

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### Momend

📍 Turkey

*Game Developer*

📅 Sep 2014 – Aug 2016

- Developed mobile games using **Unity**, with a focus on iOS builds. Debugged and maintained **Objective-C** integrations, and published completed games on [the App Store](#).  
<https://apps.apple.com/us/developer/momend/id969398452>

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## EDUCATION

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### University of Hull

📍 United Kingdom

*MSc, Computer Science for Games Programming*

📅 Sep 2024 – Aug 2025

Focused on C++ development, real-time graphics using DirectX and Vulkan, and physics-based simulation for games, while working on a team project about a Moon visit in a VR environment.

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### Ted University

📍 Turkey

*MSc, Interactive Computing and Information Systems*

📅 Sep 2017 – Aug 2020 - part-time

Completed a part-time MSc with a thesis on visual saliency. Conducted eye-tracking studies in virtual environments, analysing gaze data under various viewing conditions. Master's thesis and related academic papers are given in the Publications section.

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## Bilkent University

📍 Turkey

**BSc, Industrial Engineering**

📅 Sep 2008 – June 2013

Completed summer internships at **Prysmian Group** (2011) and **Bosch** (2012), assisting with process monitoring and gaining first-hand insight into large-scale manufacturing systems.

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## LANGUAGES

- English, **IELTS Academic** score: **7.5** [↗](#)  
(scanned report available – issued May 2023)
- Turkish, native

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## PROFESSIONAL BODY

Member, British Computer Society  
(BCS)

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## INTERESTS

Theatre (as an audience), Playing Tennis, Cycling

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## PUBLICATIONS

H. H. Olcay and D. Albayrak, "AI-Assisted Software Testing Improvements," 2025 10th International Conference on Computer Science and Engineering (UBMK), Istanbul, Turkiye, 2025, pp. 166-171, doi: 10.1109/UBMK67458.2025.11207025. [↗](#)

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Albayrak, Dilara. A Low-Level Approach to Lunar Terrain Rendering and Performance Evaluation with Vulkan. MS thesis. University of Hull (United Kingdom), 2025. [↗](#)

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Albayrak, Dilara. A study of visual saliency for free-viewing and task-oriented conditions. MS thesis. TED University (Turkey), 2020. [↗](#)

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Celikcan, Ufuk, et al. "Deep into visual saliency for immersive VR environments rendered in real-time." Computers & Graphics 88 (2020): 70-82. [↗](#)

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Albayrak, Dilara, et al. "Visual saliency prediction in dynamic virtual reality environments experienced with head-mounted displays: an exploratory study." 2019 International Conference on Cyberworlds (CW). IEEE, 2019. [↗](#)