DILARA ALBAYRAK, MSC

SOFTWARE DEVELOPER • RESEARCH ENGINEER

dilara0albayrak@gmail.com
+44 7778 816 829
UK, open to relocation

SKILLS

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

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).

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.

Hacettepe University — *MSc Research Student*
Turkey — 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.

Alabanda Tourism — *Software Developer*
Turkey — 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.

Momend — *Game Developer*
Turkey — 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

EDUCATION

University of Hull — *MSc, Computer Science for Games Programming*
United Kingdom — 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.

Ted University — *MSc, Interactive Computing and Information Systems*
Turkey — 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.

Bilkent University — *BSc, Industrial Engineering*
Turkey — 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.

LANGUAGES

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

PROFESSIONAL BODY

Member, British Computer Society (BCS)

INTERESTS

Theatre (as an audience), Playing Tennis, Cycling

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.

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

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

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

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.