

EMRE KOLBAKIR

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EDUCATION

Özyeğin University - İstanbul, Turkey

2022 - Present

Faculty of Engineering - Department of Computer Science

Year: 3rd

Sinav Anatolian High School - Antalya, Turkey

2018 - 2022

WORK EXPERIENCE

AI Systems Intern, Beren Studio VR - Ankara, Turkey

07/2024 - 09/2024

- Developed adaptive enemy AI for a VR FPS game set in hostage rescue scenarios.
- Used OpenCV for real-time player detection and line-of-sight analysis, triggering AI state transitions based on visual input.
- Designed a Finite State Machine (FSM) to manage NPC states.
- Built Behavior Trees within each state to structure NPC actions.
- Applied Utility-Based AI to select optimal actions based on health, distance, and visibility.

Software Developer, Planetary Robotics Lab., Özyeğin Uni. - İstanbul, Turkey

09/2023 - 08/2024

- Simulated a differential drive rover with Unreal Engine 5 and ROS. Integrated motor plugins, custom commands and implemented autonomous navigation and sensor-based decision-making for research
- Developed an autonomous navigation system using C++ and Python, implementing A* path planning with NumPy for efficient, real-time route computation and controlling rover behavior via ROS.
- Integrated ZED 2 stereo vision and LiDAR for real-time obstacle detection, using OpenCV, PCL, and ROS for sensor fusion and context-aware navigation.

Teaching Assistant, Math. Dep., Özyeğin Uni. - İstanbul, Turkey

04/2024 - 07/2024

- Led instructional sessions on advanced Differential Equations topics to support undergraduate understanding and application.

Gameplay Programmer Intern, Beren Studio VR - Ankara, Turkey

07/2023 - 09/2023

- Developed physics-based gameplay mechanics in Unity (C#) for a VR game, including object interactions and motion physics.
- Optimized scripts for collision detection, rigid body dynamics, and force-based responses.
- Integrated VR SDKs for motion control, reducing sickness, and improving precision.

PROJECTS

- Emotion- & Tone-Aware Text Rewriter:** An NLP-powered AI tool that adjusts tone and emotion in professional communication using HuggingFace Transformers and DistilBERT for text generation and sentiment analysis, with real-time refinement via Streamlit UI.
- Real-Time Object Detection:** A computer vision tool for real-time object detection using YOLOv5 for model training and OpenCV for video stream processing. It performs live object tracking and classification with high accuracy, suitable for applications like surveillance and autonomous vehicles.
- Face Recognition System:** A computer vision system for facial recognition using OpenCV and Haar Cascades for face detection, integrated with a dnn module for deep learning-based recognition. It enables real-time identity verification and is suitable for security applications.
- Image Classification with CNN:** A deep learning-based image classification system using CNNs for categorizing images. Implemented with TensorFlow and Keras, the model accurately classifies images into predefined categories, suitable for applications in image search and medical imaging.

SKILLS & TOOLS

- Language Skills:** Turkish (Native), English (Full Professional – Written & Oral)
- Programming Languages:** Python, Java, C++, C#, JavaScript, HTML/CSS
- Frameworks & Libraries:** ROS, OpenCV, PCL, YOLOv5, NumPy, SciPy, Eigen, NLTK, spaCy, PyTorch, HuggingFace Transformers, clean-text, scikit-learn
- Tools & Engines:** Git, Linux, RViz, ZED SDK, Oculus SDK, Unity, Unreal 5, Gazebo, Blender, MS Office
- Domains:** Computer Vision, NLP, Sensor Fusion, SLAM, Motion Planning, Autonomous Navigation

EXTRACURRICULAR ACTIVITIES

- Professional Diver: 2-Star Diver Certification by MAS (National Aquatic Sports Federation)
- YouTube Content Creator: Operating a travel-focused channel, producing, editing, and publishing videos that showcase various destinations

References available upon request