

Erasmus Placement Opportunities

School of Sciences @ UCLan Cyprus

1. Development of an Intelligent Reality Virtual Museum to Support Cyprus Cultural Heritage

Description: Engage in a research project currently underway at UCLan Cyprus, focusing on the development of an Intelligent Reality virtual museum using eXtended Reality, Artificial Intelligence, and other emerging technologies to support cultural heritage. The project aims to innovate through the development of an immersive system where users can experience cultural heritage in high fidelity through mixed reality applications in meaningful and interactive ways. The main project objective is to bring together various key locations, historical sites, and objects of significant historical interest to the Cypriot community, in a virtual interactive space that is driven, controlled, and managed by Artificial Intelligence agents and elements, providing an immersive interactive experience to its users/visitors. During this internship, you will get to work with Meta Quest 2 Virtual Reality headsets, development through Unreal Engine, advanced 3D graphics, mesh generation through photogrammetry, AI tools and algorithms.

Details: Louis Nisiotis, LNisiotis@uclan.ac.uk

2. Title: Virtual Reality game development and evaluation

Description: Engage in the development and user evaluation of a game in Virtual Reality. Use Unreal Engine or Unity3D to develop an engaging and interactive game comprising of multiple NPC's functionalities using advanced artificial intelligence techniques (Reinforcement Learning, GOAP, Influence Maps, Behaviour Trees, Blackboard systems and other). Deploy the game in VR and in desktop and perform comparative experiments on user experience and performance. Opportunities to work on exiting games underway in our student-led game studio are also available.

Details: Louis Nisiotis, LNisiotis@uclan.ac.uk

3. Digital Twins and Robotics

Description: Engage in a project underway aiming to blend the real with digital worlds using Virtual Reality, Robotics and Digital Twins. Work with Unity3D and a small research mobile robot (turtlebot 2) to develop robotic functionalities such as autonomous pathfinding, object recognition through machine vision and other intelligent capabilities, to be then visualized in real time through the robot's digital representation in a VR world.

Details: Louis Nisiotis, LNisiotis@uclan.ac.uk

4. 3D mmWave Indoor Localization

Description: Engage in a research project currently underway at UCLan Cyprus, focusing on the investigation of the ability and applicability of the mmWave technology for developing commercial products or services that achieve high precision 3D positioning accuracy. The project aims to develop a network of mmWave Radar sensors that measure the distance and angle of 3D targets (e.g. drones) in an indoor environment and by fusing this information (using Kalman Filtering) with inertial information collected on the drone will investigate the 3D positioning accuracy that could be achieved and compare it with vision-based (Open CV cameras) positioning techniques. During this internship you will get to experiment with the integration of sensors (mmWave, cameras, inertial) to setup and code a system that will collect the necessary data and estimate the position of a drone. Required Skills include good programming skills especially in Python and MATLAB, wireless communication, geometry and mathematics, data fusion (Kalman Filtering)

Details: Marios Raspopoulos, mraspopoulos@uclan.ac.uk

5. 3D Precision farming using UAVs in Greenhouses.

Description: Engage in a research project currently underway at UCLan Cyprus, focusing on the adaptation of existing technologies used in a precision agriculture (PA), into an indoor (greenhouse) prototype system which includes the use of both an unmanned ground and aerial vehicles (UGV and UAV). The term precision agriculture refers to the use of information technologies (IT) to help farmers manage the optimal growth of their crops thus ensuring profitability and sustainability. Furthermore, PA has also been known to help the environment by avoiding unnecessary spaying of pesticides as well as excessive use of water and fertilisers. The use of unmanned systems offers higher spatial resolution data compared to satellites. During this internship you will get to experiment with the integration of AI cameras (for UAV localization) and multispectral cameras for the identification of diseases on plants. Required Skills include good programming skills especially in Python and MATLAB, Artificial Intelligence and Computer Vision, geometry and mathematics, data fusion (Kalman Filtering), system integration

Details: Stelios Ioannou, sioannou2@uclan.ac.uk

6. Qualitative Research on Responsible and Trustworthy Science and Technology.

Description: Engage in ongoing European projects that study aspects of responsible technology and trust in science through qualitative research, including interviews and focus groups. The intern should have excellent knowledge of English and have skills in qualitative research and analysis; experience with thematic analysis is a plus. Additionally, the ideal intern would have good organizational skills, management skills, communication skills, adherence to work ethics, punctuality, capability of taking initiatives performance and ability to work in a team. Opportunities to contribute to scientific publications are available through this internship.

Details: Josephina Antoniou, JAntoniou@uclan.ac.uk