JOB DESCRIPTION

Job Title: Research Fellow in Cyber Threat Detection in Extended Reality

Grade: AC2

Department: FES/CMS

Responsible to: Professor of Cyber Security

Responsible for: N/A

Key Contacts: Research team members, Project SUN partners

Standard Occupational Classification (SoC code): 2162

Non-Contractual Nature of Role Profile: This role profile is non-contractual and provided for guidance. It will be updated and amended from time to time in accordance with the changing needs of the University and the requirements of the job.

PURPOSE OF ROLE

This role relates to SUN, an international research project funded by Horizon Europe. SUN's consortium is investigating and developing extended reality (XR) solutions that integrate the physical and the virtual world in a convincing way, from a human and social perspective.

The particular role relates to the development of a technology that will help address the cyber security weaknesses of the XR environments. At its core, it includes the development of an intrusion detection system that warns the user when a cyber threat has materialised. It involves development of the data monitoring from a variety of sources on the XR system, then development of automated analysis of the data monitored and finally displaying a warning to the user when and where appropriate. The purpose of the whole work is to warn the user quickly enough so as to prevent cyber security incidents on the XR environment from escalating and causing significant impact, especially in the use cases of the projects, which are related to healthcare and manufacturing. The team already has significant progress in VR, and there is now the need to use the lessons learned in VR to extend to AR.

This work will be carried out under the supervision of Professor George Loukas.

KEY ACCOUNTABILITIES
Team Specific:

- To extend an existing XR testbed to better align with the use cases identified in the project
- To explore the applicability of a variety of threats to the particular XR testbed developed as well as the XR applications developed by the project partners
- To develop a monitoring mechanism or set of mechanisms able to collect data on aspects of the operation of the system that can indicate any of the threats explored previously
- To utilise artificial intelligence to automatically detect whether an XR threat has materialised
- To develop a warning mechanism that can be displayed to the user effectively in an AR environment
- To help our integration partners in the project in the integration of the detection and warning mechanism into the project's case studies of healthcare XR and manufacturing XR.
  Attend project meetings remotely and physically overseas, around 6 of which in various countries in Europe.

Generic:
- To participate in the write-up of the corresponding project deliverable reports.

Managing Self:
- To work in a flexible manner, ensuring research outcomes are met
- Ability to work on own initiative, but to ask when needing support
- To work with others as part of a team
- Ability to work to deadlines
- Ability to work on own initiative without constant supervision
- Ability to work accurately under pressure

Core Requirements:
- Adhere to and promote the University's policies on Equality, Diversity and Inclusion and Information Security;
- Ensure compliance with Health & Safety and Data Protection Legislation;
- Support and promote the university's Sustainability policies, including the Carbon Management Plan, and carry out duties in a resource efficient way, recognising the shared responsibility of minimising the university's negative environmental impacts wherever possible
- Adhere to current legal requirements and best practice relating to digital content and accessibility, including Web Content Accessibility Guidelines when creating digital content.

Additional Requirements:
Undertake any other duties as requested by the line manager or appropriate senior manager, commensurate with the grade.

This is a professional, demanding role within a complex organisation with an ambitious strategic plan and agenda for change. The role holder will be expected to show flexibility in working arrangements, including working hours, to ensure that the university and its Centre for Sustainable Cyber Security deliver the required level of service.

KEY PERFORMANCE INDICATORS:
- Meeting project deliverable deadlines
- Preparation and publication of research findings in international peer-reviewed journals and conferences

KEY RELATIONSHIPS (Internal & External):
- Professor of Cyber Security
- Professor of Networked Systems
- External project partners

PERSON SPECIFICATION

EXPERIENCE:

Essential Criteria
- Development of VR/AR/XR environments as part of research or industrial work

Desirable Criteria
- Have worked as part of an EU or other large research project with multiple partners

SKILLS:

Essential Criteria
- Highly competent software developer, especially in VR/AR/XR
- Able to work to strict deadlines

Desirable Criteria
- Deliverable report writing
- Cyber security skills, such as penetration testing
- OpenXR

QUALIFICATIONS:

Essential Criteria
- MSc in computer science, engineering or equivalent work experience

Desirable Criteria
- PhD in VR, AR, XR or cyber security

PERSONAL ATTRIBUTES:

Essential Criteria
- We are looking for people who can help us deliver the values of the University of Greenwich: Inclusive, Collaborative and Impactful.

Desirable Criteria
- N/A