Nadia KANWAL

Technology centre: Software Research Institute (SRI), Athlone Institute of Technology (AIT)
Academic Mentor: Dr. Yuansong Qiao
Commercial Partner: Evercam Ltd
Commercial Mentor: Marco Herbst

Nadia received her bachelor's and master's degree in Peshawar University, Pakistan. In 2008 she started her second master's degree in University of Essex, UK focusing on Motion Tracking in Video using Best Feature Extraction Technique. In 2009 Nadia started her doctoral degree in University of Essex, UK doing research on Low Level Images Features and Navigation Systems for Visually Impaired People. Currently, she is working as Marie Sklodowska-Curie Career-Fit postdoc fellow at Software Research Institute, Athlone Institute of Technology Ireland. The primary objective of this fellowship is to propose technological solutions for privacy protection of humans as per GDPR guidelines. She remained associated with Lahore College for Women University, Pakistan where she is Associate Professor in the Department of Computer Science. Nadia's research interest focus on applying deep learning methods to improve the performance of vision algorithms for detection and tracking tasks which can help to develop robust solutions for different vision-related applications. Her peer-reviewed work can be seen in machine learning, image/video processing, medical imaging, and privacy. Dr. Kanwal remained a student member of the IEEE Computer Society, the Institution of Engineering and Technology, and the British Machine Vision Association. She has been actively involved in reviewing for reputed conferences and journals.

Dr. Yuansong Qiao

Dr. Yuansong Qiao is a Senior Research Fellow in the Software Research Institute at Athlone Institute of Technology Ireland. He is a Funded Investigator in Science Foundation Ireland (SFI) CONFIRM Smart Manufacturing Centre. He was the Principal Investigator of an SFI SIRG project named VidSDN (Application-aware Video Distribution using Software Defined Networking). He was the Principal Investigator of the COMAND (Connected Media Application Development and Design) Technology Gateway project and the SUNAT (Seamless Use through Network Abstraction Technologies) Applied Research Enhancement project funded by Enterprise Ireland. He received his Ph.D. in Computer Applied Technology from the Institute of Software, Chinese Academy of Sciences. He completed a B.Sc. and an M.Sc. in Solid Mechanics from Beihang University, China. His current research interests include Future Internet Architecture, Blockchain Systems, Internet of Things, Smart Manufacturing and Edge Intelligence and Computing.

Marco Herbst

Marco (B.Eng. Trinity College, Dublin), is the CEO and CTO of Evercam and is responsible for the technical strategy and key technical decisions. Marco Herbst has led Evercam software development since the founding of the company and has deep technical and practical knowledge of the problems encountered by his team. He leads Evercam's involvement as a consortium partner in the H2020 funded Eyes of Things project, which is developing a low power smart camera. As CTO of Evercam, Marco has a broad grasp of the wide range of issues at play, from the requirements and limiting environmental factors of typical LAN deployments, to the state of current deployed camera systems, through to low level understanding of codecs and video transmission.

Software Research Institute (SRI)

SRI is a research and innovation group of some twenty full-time researchers, post graduate students and engineers that is engaged in immersive media interaction and in communications networking research. SRI's research program is focused on areas relating to the proposed research and is predicated on increasing convergence of back-end and frontend technologies (cloud, mobile, IoT, wearables) leading to a distributed and diverse edge cloud or "service mesh" of computing/service platforms and end-points. SRI has its own cloud data centre with 18 servers providing over 200 core compute capability.

Evercam Ltd

Evercam Ltd. have been developing cloud CCTV software since 2010. They maintain a network of over 1,000 live CCTV cameras, mostly in Dublin City Centre. Evercam's main application is an open source project (Evercam) on Github.

Nadia's project

"Distributed Deep Learning System for Privacy Preserving Video Retrieval in Large Scale Visual Sensing"

The time has gone when only special places were kept under surveillance to ensure their security and safety, now surveillance is becoming the requirement of every house/office these days. This happened because of the availability of low cost and very small size surveillance sensors (cameras). However, there is no mechanism to preserve the privacy of individuals and therefore, several ethical issues are arising and limiting the use of automated surveillance systems.

This project focuses on developing an edge based privacy-preserving video surveillance solution for GDPR compliant video recording using machine learning methods. Nadia proposes the use of deep learning technologies for identifying the video content that must be hidden from high-level users or analytical tools.

Furthermore, the aim is to use these algorithms in a distributed environment where data coming from several sensors will be processed before utilizing by surveillance methods. The proposed frameworks and models will be validated in real scenarios given by the partner company.