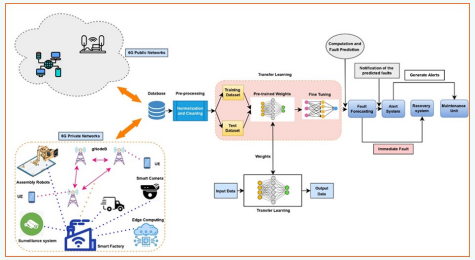
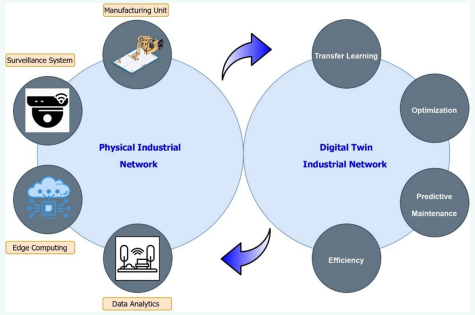
Typical Use Cases

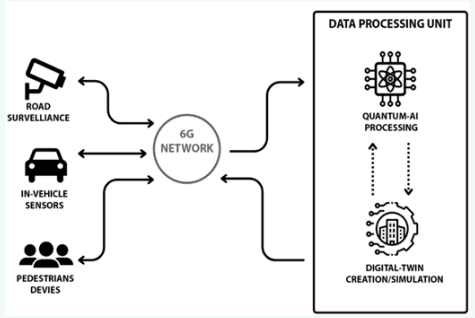
- **Fault forecasting in industrial networks using machine learning**



- **Wireless network configuration and optimisation based on (network) digital twin in industrial settings**



- **Smart cities through massive twinning and real-time data collection**



Follow Us

Stay updated and follow our project on social media :

@Scion Project
SCION Project
@scionproject
scion.iyte.edu.tr

Acknowledgments

Funded by the European Union's Horizon Europe programme under the Marie Skłodowska-Curie Actions Doctoral Networks Grant Agreement No. 101072375. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them. The UK institutions were funded by UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee [grant numbers EP/X027201/1 and EP/X027244/1.]

Secured and Intelligent Massive M2M Communications for 6G (SCION)

SCION



Background and Motivation

To satisfy the expected plethora of demanding services, 6G is envisioned as a revolutionary paradigm to carry forward the capacities of enhanced broadband, massive access, and Ultra-reliable and low latency services in 5G wireless networks to a more robust and intelligent level.

In response to the challenges associated with 6G, artificial intelligence (AI), especially machine learning (ML), Semantic Communication and Digital Twin (DT) are emerging as solutions to realize the fully intelligent network orchestration and management. By learning from uncertain and dynamic environments, AI-enabled channel estimation and spectrum management will open up opportunities for bringing the excellent performance of Ultra-broadband techniques into full play. Additionally, challenges brought by Ultra-massive access concerning energy and security can be mitigated by applying AI-based approaches.

The overall research objective of the SCION project is to develop and design the network systems for seamless wireless access for Secure and Intelligent Massive Machine-to-Machine Communications for 6G. In addition to technology development, to meet the urgent needs for the future working force of the coming 6G era, this collaborative project will create a training network for Doctoral Candidates who will contribute to the design and implementation of future 6G networks.

SCION Objectives

1. Research and develop semantic encoder and decoder for M2M communication.
2. Research and develop highly efficient and simultaneous wireless power and information transfer technologies.
3. Research and propose lightweight AI model design approaches and online learning methods to enhance the M2M communication networks.
4. Research and propose ultra-reliable and autonomous network management strategies.
5. Research and adopt the Digital Twin (DT) technology for establishing digital representations of M2M communication networks.
6. Research and propose an AI-based M2M communication scheduling.
7. Research and develop a blockchain framework for DTs (virtual world) and M2M (physical world) to ensure transparency, trust, and security.
8. Develop a complete and practically deployable project system by integrating the individual innovations and evaluating real-life experiments.

Project Partners

İzmir Institute of Technology

KTH Vetenskap och Konst

Data Machine Elite

TU/e Eindhoven University of Technology

Huawei

Iris Automation

University of Essex

universidade de aveiro

NTU Nottingham Trent University

@Scion Project

SCION Project

@scionproject

scion.iyte.edu.tr