

Laboratory Name: BTS Advanced AI Hub: BTS Otonom Ağlar ve Veri İnovasyon Laboratuvarı

Company: BTS Kurumsal Bilişim Teknolojileri A.Ş.

Laboratory Manager: Prof. Dr. Berk Canberk

Laboratory Manager Short Biography:

Prof. Dr. Berk Canberk is the Director of BTS Advanced AI Hub. He received his PhD in Computer Science from Istanbul Technical University (ITU) Turkey in 2011, his MSc in Telecommunications Engineering from the Chalmers University of Technology Sweden in 2005, and his BSc in Electrical Engineering from ITU in 2003. He has been a Post-Doctoral researcher at Georgia Institute of Technology, USA between 2011-2013. He's been an Adjunct Professor within the Department of Electrical and Computer Engineering at Northeastern University USA since 2017, and Professor within the Department of Artificial Intelligence and Data Engineering at Istanbul Technical University since 2021. His research areas are AI-enabled Digital Twins, IoT Communication, and Smart Wireless Networks.

Research Area:

As BTS Group, we have actualized our transformation process into a technology vendor by focusing on artificial intelligence-based programmable infrastructures as of 2018. We develop technology in our region by implementing our technology base, BTS LABS, which is Turkey's first R&D center in SDx and ICT Automation, and we cooperate with the industry's leading vendors and cloud companies on new generation artificial intelligence-based programmable solutions. With our BTS Sybelle for Virtualization, BTS Sybelle for Hyperconverged Infrastructure and BTS Olympos Automation Platform products, we are proud of entering the markets dominated by world giants as an innovative Turkish technology vendor.

The main research areas within the BTS Advanced AI Hub are divided into 3 main categories. These are "Next Generation Digital Twin", "Advanced Distributed Software Architecture/Distributed Data Warehouse" and "Semantic Communication and Compression". Within the scope of the management and orchestration of simple, medium and complex network structures, pioneering studies are carried out on the creation of virtual models using Next Generation Digital Twin Technology. Digital Twin developments are expected to make significant contributions to the pre-evaluation of future customer demands on the real network system and timely intervention in software development processes. By combining the research efforts in autonomous communication, distributed architecture, edge computing and artificial intelligence, we are developing advanced, intelligent, scalable and autonomous systems that can operate in real time and at scale. Machine Learning (ML), Deep Learning (DL), and Federated Learning (FL) techniques are being utilized for prediction mechanisms. The obtained prediction models are being supported by explainable artificial intelligence methods. Lastly, various learning techniques and neural network models are being developed and tested paving the way for one of the first real-life semantic communication deployments within Sybelle platform.