

**YEDITEPE UNIVERSITY**  
**Department of Computer Engineering**

**SEMINAR**

**January 23, 2023**

**16:30 – 17:00**

**Online**

<https://meet.google.com/ssw-jqmd-hwi>

**Optimized and distributed Deep Neural Network fog computing  
for traffic jam detection from CCTV cameras**

*Zahra Esfandiari Baiat*

Traffic information is one of the important concepts for smart cities, and accurate detection of traffic has been pursued for many years. There are many cameras which are capturing real-time video streams data from several streets. The smart traffic management systems help to detect the congestion area and based on that situation, make further decisions. Deep Neural Network (DNN) is a subfield of artificial intelligence that involves the use of algorithms and statistical models to allow computers to learn and make decisions based on data which contains billions of parameters and multiple layers, as a result it needs high computation and storage resources. Most existing DNN applications are implemented in cloud computing due to its efficient resource provisioning. In conventional methods, all the IoT data generated by the sensors is transferred to the cloud and then proper processing is done, but with the emergence of fog computing everything changes, and it converts the process in the near of the edge devices. With replacing the DNN model to the fog nodes, it will provision the QoS, But the fog nodes are not sufficient to support complex data analytics. So, deploying DNN models in resource constrained devices is still an open challenge. To address the above challenges, an optimal and distributed DNN model required, which is capable of being implemented in distributed resource constraint fog nodes and it is one of possible ways to achieve better QoS and probably QoE matrices.

**Biography**

Zahra Esfandiari Baiat received her bachelor's degree in Software Computer Engineering from Shiraz Computer Engineering University and her master's degree in Artificial Intelligence and Robotics with thesis from Shiraz Computer Engineering University. She is currently pursuing her PhD in Computer Engineering at Yeditepe University, and her research interests include artificial intelligence, deep learning, Internet of Things, network and real-time data analytics.