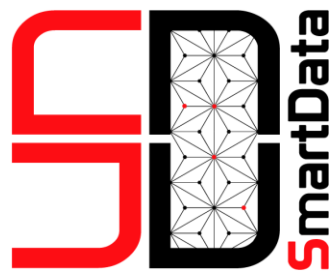




Politecnico  
di Torino

SmartData@PoliTO



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SmartTalk: Covivio



Guido Marchetto  
Associate Professor -  
Politecnico di Torino



Alessio Sacco  
PhD Student - Politecnico  
di Torino



## Towards Autonomous Computer Networks for Critical Systems

### ABSTRACT

Recent management and orchestration approaches for softwarized networks employ Artificial Intelligence (AI) and Machine Learning (ML) to further reduce reaction time and improve the accuracy of decisions, while automating network operations to ultimately facilitate the deployment of new interactive services.

In this talk, we present a novel class of software network solutions that share the goal of enabling intelligent and autonomous computer networks, exploring how to exploit the power of AI/ML to handle the growing complexity of these emerging applications, with particular focus on critical systems, such as industrial networks or telemedicine frameworks. We start with routing and network planning, proposing a network management schema that auto-scales (virtual) network resources to accommodate the traffic demand and reacts to possible failures.

Then, acting on TCP congestion control, we propose an ML-based solution aiming to solve the problem of an adequate congestion window update strategy that can increase the throughput and fairness while reducing the number of packet losses and delays.

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