

AISSAI Anomaly Detection Workshop



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A deep learning approach for videobased traffic anomaly detection

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Traffic safety systems especially in critical infrastructure such as road tunnels have garnered the interest of researchers for many years. While traffic managers have used traffic surveillance cameras for some time now, recent advances in computer vision and understanding have enabled more sophisticated automatic incident detection systems. Most state of the art systems consist of modern vehicle detection technologies combined with heuristic based incident detection systems. Our work introduces an end-to-end anomaly detection method, free from manually set rules, making it more adaptable and robust. The main building block consists of a novel deep learning architecture designed to extract traffic flow relevant information from consecutive frames. Due to the high predictability of vehicle movements in highway driving situations the distribution of near future traffic information is highly predictable. In anomalous traffic situation this discrepancy of prediction and actual next frame representation exceeds the prediction error of normal traffic behavior. Compared to conventional systems, our proposed method showcases enhanced energy efficiency, potentially reducing operational costs, and exhibits superior performance in detecting a broader spectrum of anomalies.

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Classification de Session: Lightning talks