UNIVERSITY of SOUTH FLORIDA
College of Engineering
Department of Electrical Engineering

SEMINAR

DEPARTMENT OF ELECTRICAL ENGINEERING

Real-Time Video Anomaly Detection with Asymptotic Bound on False Alarm Rate

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ABSTRACT

Anomaly detection in videos has been attracting an increasing amount of attention. Despite the competitive performance of recent methods on benchmark datasets, they typically lack desirable features such as modularity, cross-domain adaptivity, interpretability, and real-time anomalous event detection. Furthermore, current state-of-the-art approaches are evaluated using the standard instance-based detection metric by considering video frames as independent instances, which is not ideal for video anomaly detection. Motivated by these research gaps, we propose a modular and unified approach to the online video anomaly detection and localization problem, which consists of a novel transfer learning-based plug-and-play architecture, a sequential anomaly detector, a mathematical framework for selecting the detection threshold, and a suitable performance metric for real-time anomalous event detection in videos. Extensive performance evaluations on benchmark datasets show that the proposed framework significantly outperforms the current state-of-the-art approaches.

BIOGRAPHY

Yasin Yilmaz received the Ph.D. degree in Electrical Engineering from Columbia University, New York, NY, in 2014. He is currently an Assistant Professor of Electrical Engineering at the University of South Florida, Tampa. His research interests include machine learning, statistical signal processing, and their applications to computer vision, cybersecurity, IoT networks, energy systems, transportation systems, and communication systems.