TITLE:

EARLY FIRE DETECTION SYSTEM USING DEEP LEARNING AND OPENCV

ABSTRACT:

In this work we investigate the automatic detection of fire pixel regions in video (or still) imagery within real-time bounds without reliance on temporal scene information. As an extension to prior work in the field, we consider the performance of experimentally defined, reduced complexity deep convolutional neural network (CNN) architectures for this task. From sprawling urbans to dense jungles, fire accidents pose a major threat to the world. These could be prevented by deploying fire detection systems, but the prohibitive cost, false alarms, need for dedicated infrastructure, and the overall lack of robustness of the present hardware and software-based detection systems have served as roadblocks in this direction. In this work, we endeavor to make a stride towards detection of fire in videos using Deep learning. Deep learning is an emerging concept based on artificial neural networks and has achieved exceptional results in various fields including computer vision. We plan to overcome the shortcomings of the present systems and provide an accurate and precise system to detect fires as early as possible and capable of working in various environments thereby saving innumerable lives and resources.