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# Resource Estimation for Large Scale, Real-Time Image Analysis on Live Video Cameras Worldwide

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## ABSTRACT

Thousands of public cameras live-stream an abundance of data to the Internet every day. If analyzed in real-time by computer programs, these cameras could provide unprecedented utility as a global sensory tool. For example, if cameras capture the scene of a fire, a system running image analysis software on their footage in real-time could be programmed to react appropriately (perhaps call firefighters). No such technology has been deployed at large scale because the sheer computing resources needed have yet to be determined. In order to help us build computer systems powerful enough to achieve such lifesaving feats, we developed a model that estimates the computer resources required for an experiment of that magnitude. The team is creating an experiment to demonstrate the feasibility of analyzing real-time images in a large scale. More specifically, the experiment aims to retrieve and analyze one billion images in 24 hours. Preliminary study suggests that this goal is attainable. This experiment will study the accuracy and performance of state-of-the-art image analysis solutions and reveal directions for future improvement.

## KEYWORDS

Image analysis, real-time, camera, resource estimation