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Continuous Analysis of Many Internet Connected Cameras

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ABSTRACT

There are many Internet connected cameras from all over the world containing a lot of useful information that goes undiscovered. Traffic cameras could monitor the amount of congestion on the highway. Outdoor cameras could monitor weather conditions and help develop more accurate weather models. Currently there is no common system that brings this camera data and a way to analyze it together. The goal of CAM² is to create a system that lets users easily access this camera data and perform large-scale analysis on it to extract useful information. The structure of the system includes (i) a website that allows users to interact with the system, (ii) a database of thousands of publically accessible cameras, (iii) a manager that allocates and manages all the resources needed for analysis, and (iv) cloud computing instances used to execute analysis programs. The system uses the image-processing library OpenCV and an API to allow users to create their own image analysis programs that are compatible with CAM². Users can also select from over a dozen provided analysis programs including motion analysis, object counting, and more. Once users select an analysis program or upload their own, they can choose from a selection of approximately 70,000 cameras to analyze. People can register on the CAM² website, cam2.ecn.purdue.edu, to begin analyzing camera data and extracting information that would otherwise go undiscovered. Future work includes adding more public cameras to the system and adding more features to make the system easier to use and more powerful for users.

KEYWORDS

Image Processing, Cameras, Data Analysis, Computer Vision

REFERENCES

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