

A Contact Sheet Approach to Searching Untagged Images on Smartphones

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Abstract

We present a cloud-based approach to opportunistic, near real-time search of untagged images on smartphones that is sensitive to bandwidth and energy constraints. Our approach is inspired by the long-established practice of photographers using contact sheets to rapidly visualize a new collection of photographs, and then selecting a subset on which to focus attention. On behalf of each smartphone, the cloud maintains a virtual contact sheet of images that have been captured but not yet uploaded. The virtual contact sheet consists of a set of low-fidelity images as well as full or partial meta-data associated with each image. If search processing on the cloud indicates that a particular low-fidelity object is relevant, then its full-fidelity image can be obtained just-in-time from the corresponding smartphone for further search processing or presentation to the user. Our approach is not limited to images—they merely provide a convenient query space to test search optimizations.

Poster Details

We will present a 36x48 inch poster with details about our current implementation and results thus far. The poster includes information about our implemented cloud backend, Android client, and Diamond modifications. We use the Diamond platform to perform queries over the virtual contact sheets and return results to a client performing searches. We also include details on our developed APIs integrating the mobile world with the cloud world.

Both Kiryong Ha and Wolfgang Richter will be presenting the poster. Mahadev Satyanarayanan will also be present at HotMobile this year.