

# I-Pic: A Platform for Privacy-Compliant Image Capture

Submitted by [grigby1](#) on Tue, 08/22/2017 - 11:54am

Title I-Pic: A Platform for Privacy-Compliant Image Capture

Publication Type Conference Paper

Year of Publication 2016

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Conference Name Proceedings of the 14th Annual International Conference on Mobile Systems, Applications, and Services

Publisher ACM

Conference Location New York, NY, USA

ISBN Number 978-1-4503-4269-8

Keywords [Human Behavior](#), [location-based services](#), [mobile computing](#), [Pervasive computing](#), [privacy](#), [proximity-based services](#), [pubcrawl](#), [Resiliency](#), [Scalability](#), [social networking](#)

## Abstract

The ubiquity of portable mobile devices equipped with built-in cameras have led to a transformation in how and when digital images are captured, shared, and archived. Photographs and videos from social gatherings, public events, and even crime scenes are commonplace online. While the spontaneity afforded by these devices have led to new personal and creative outlets, privacy concerns of bystanders (and indeed, in some cases, unwilling subjects) have remained largely unaddressed. We present I-Pic, a trusted software platform that integrates digital capture with user-defined privacy. In I-Pic, users choose a level of privacy (e.g., image capture allowed or not) based upon social context (e.g., out in public vs. with friends vs. at workplace). Privacy choices of nearby users are advertised via short-range radio, and I-Pic-compliant capture platforms generate edited media to conform to privacy choices of image subjects. I-Pic uses secure multiparty computation to ensure that users' visual features and privacy choices are not revealed publicly, regardless of whether they are the subjects of an image capture. Just as importantly, I-Pic preserves the ease-of-use and spontaneous nature of capture and sharing between trusted users. Our evaluation of I-Pic shows that a practical, energy-efficient system that conforms to the privacy choices of many users within a scene can be built and deployed using current hardware.

URL <http://doi.acm.org/10.1145/2906388.2906412>

DOI [10.1145/2906388.2906412](http://doi.acm.org/10.1145/2906388.2906412)

Citation Key aditya\_i-pic:\_2016



[Human behavior](#) [location-based services](#) [mobile computing](#) [pervasive computing](#) [privacy](#) [proximity-based services](#) [pubcrawl](#)  
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