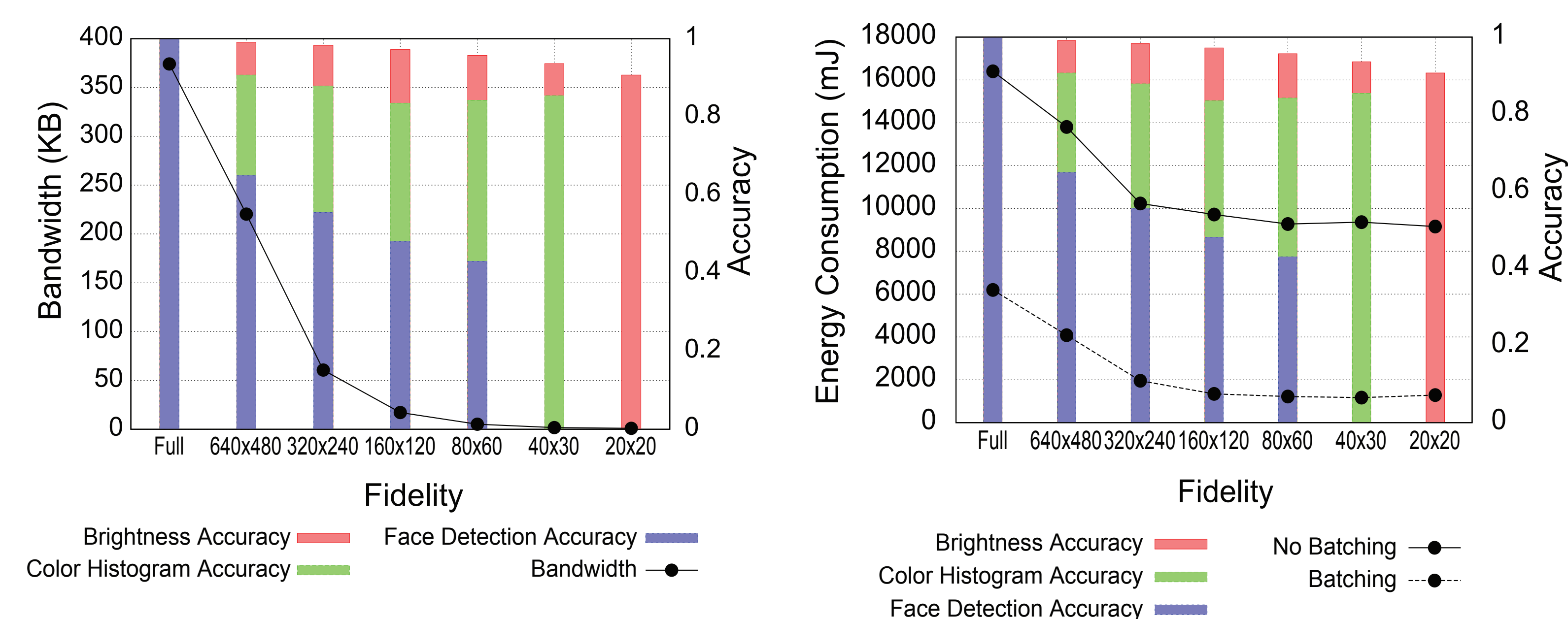


Contact Sheets: Searching Untagged Images on Smartphones

Wolfgang Richter CMU, Kiryong Ha CMU, Alok Shankar CMU, Ardalan Amiri Sani Rice University,
Jan Harkes CMU, Lin Zhong Rice University, Mahadev Satyanarayanan CMU

Problem

- How do we do
- real time
 - mobile device
 - image search
- while conserving:
- energy
 - bandwidth



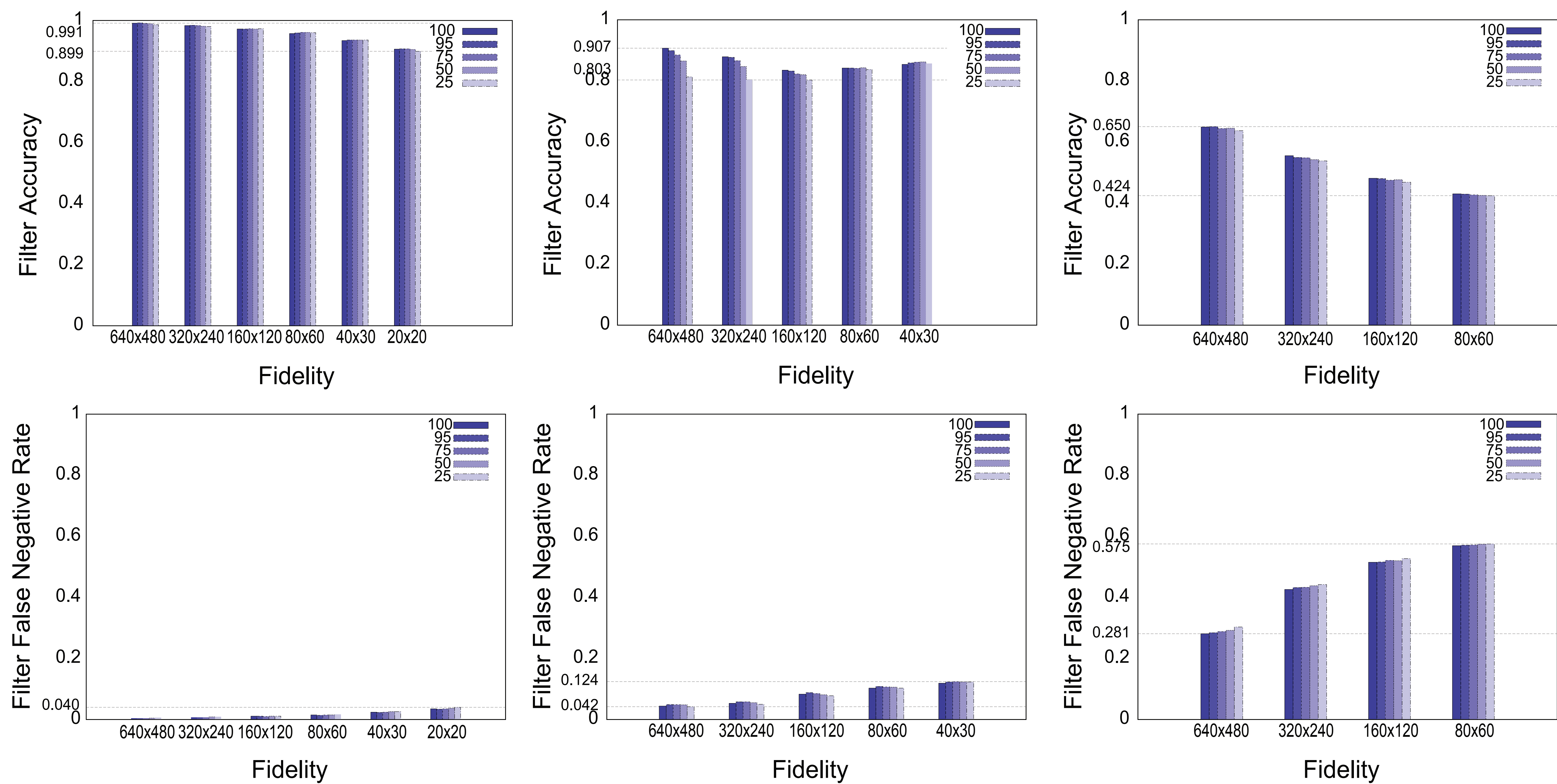
Thief caught in background of family photo [CNN]

Evaluation

- Vision and image processing black boxes
- Test performance on fidelity reduced inputs
- Dataset size of 12,963 images
- Varied
 - Size in resolution
 - JPEG Quality Factor

Solution Strategy

- We focus on a cloud-based approach to opportunistic, near real-time search of untagged images on smartphones that is sensitive to bandwidth and energy constraints.
- Fidelity Reduced virtual contact sheets



Average JPEG Size						
Full	374.06K					
Resolution	100	90	75	50	25	5
640x480	220.53K	113.83K	47.03K	30.88K	19.36K	5.67K
320x240	60.61K	32.89K	14.34K	9.61K	6.18K	1.94K
160x120	17.20K	9.92K	4.59K	3.17K	2.13K	826.16b
80x60	5.17K	3.23K	1.63K	1.19K	891.75b	459.93b
40x30	1.70K	1.18K	725.13b	587.58b	483.87b	344.76b
20x20	1000.91b	727.07b	501.09b	435.51b	385.46b	316.62b