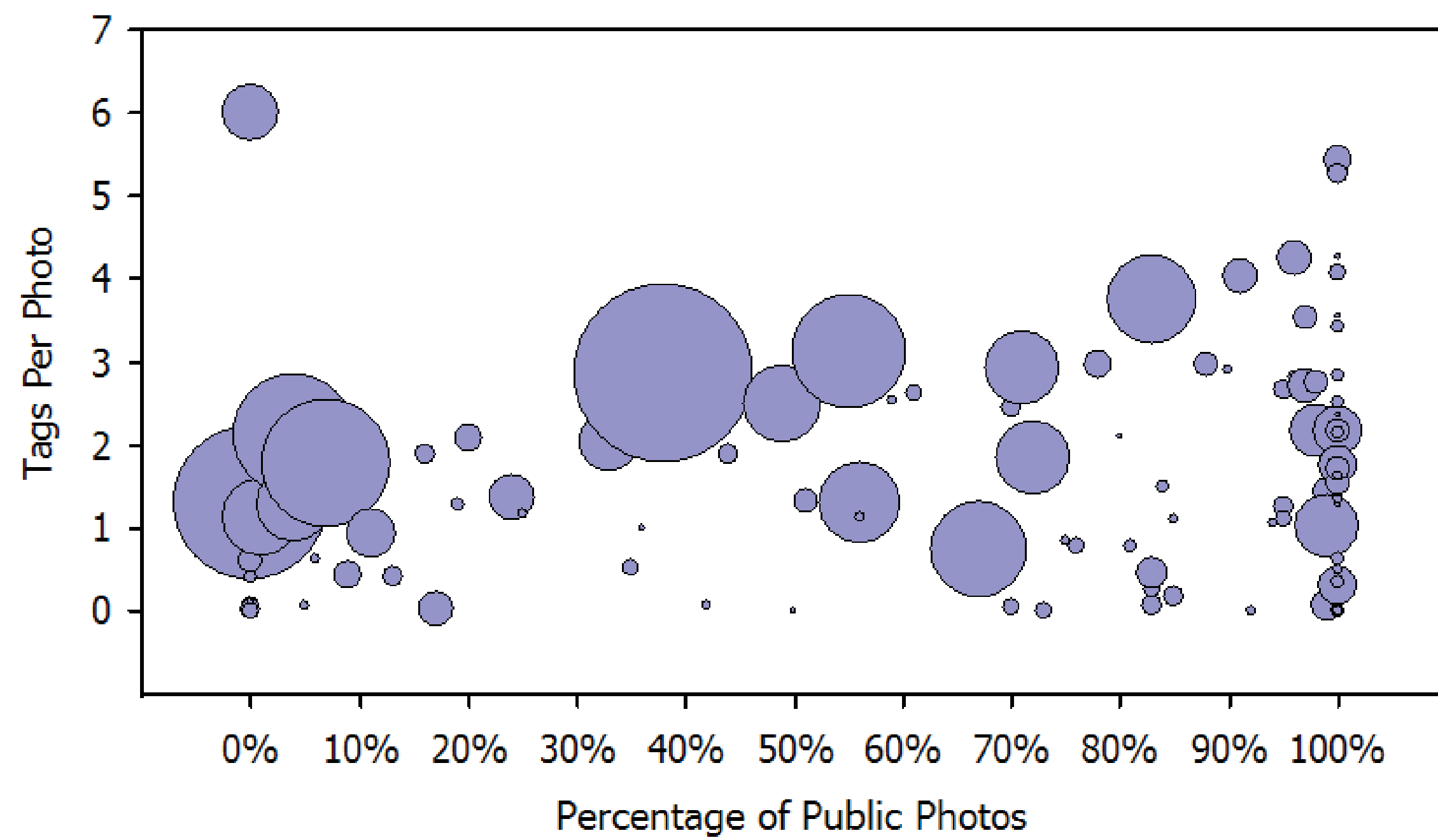


Privacy Decisions for Location-Tagged Media

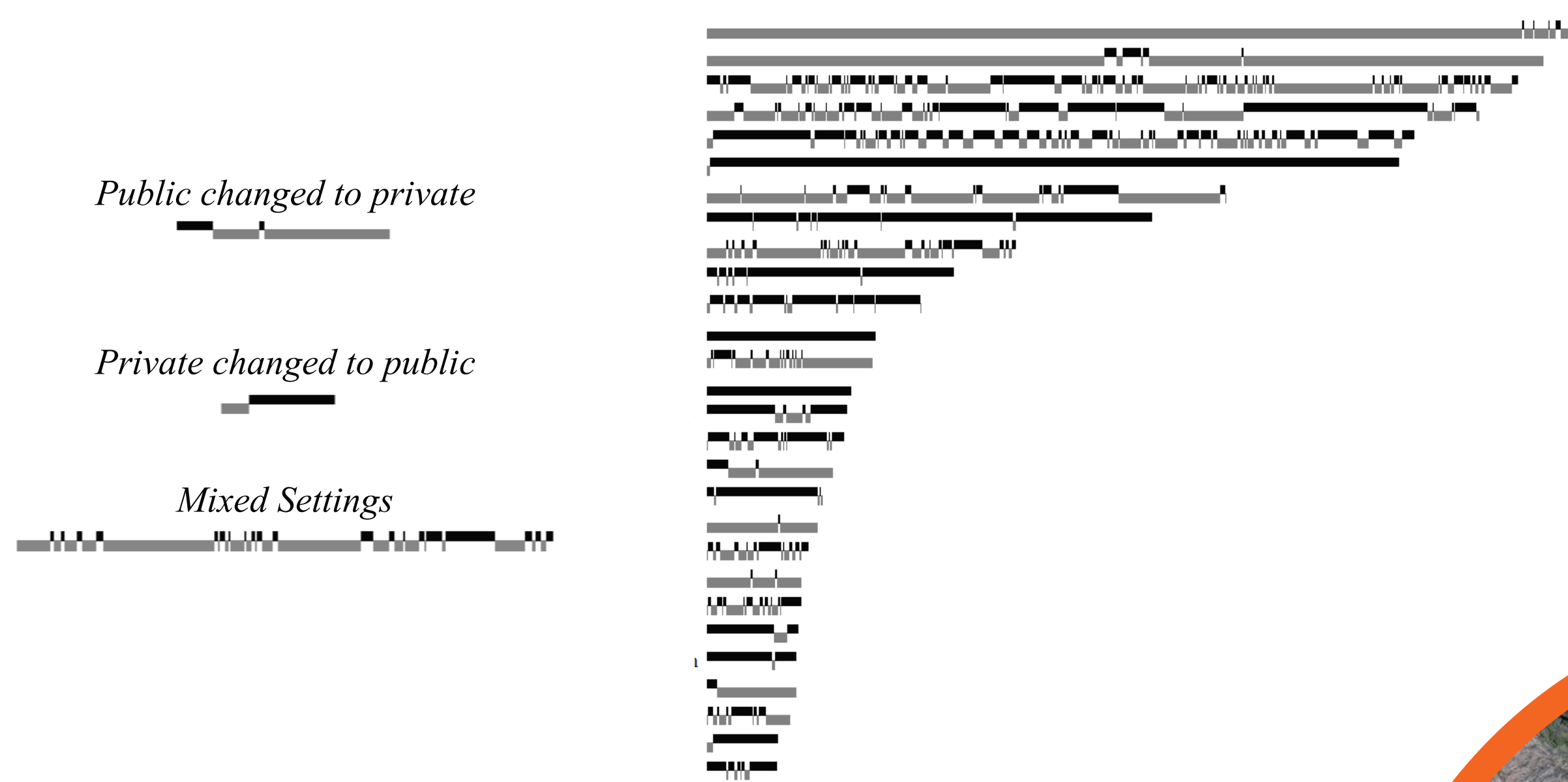
Privacy Patterns

"I ended up being more sensitive [about photos being public] than I thought I was".

"If it's a family [photo] or the kids, then I'd like it private".



The figure above depicts the set of ZoneTag users according to the percentage of public photos in their account. Each user is represented by a circle; the circle area is proportional the number of photos taken by the user. The Y-axis represents the average number of textual tags added by the user to their photos. Users with a higher proportion of public photos tend to use more tags for each photo. For example, "all-private" users (left side of the figure) averaged 1.2 tags per photo, and "all-public" (right) averaged 1.9 tags per photo.



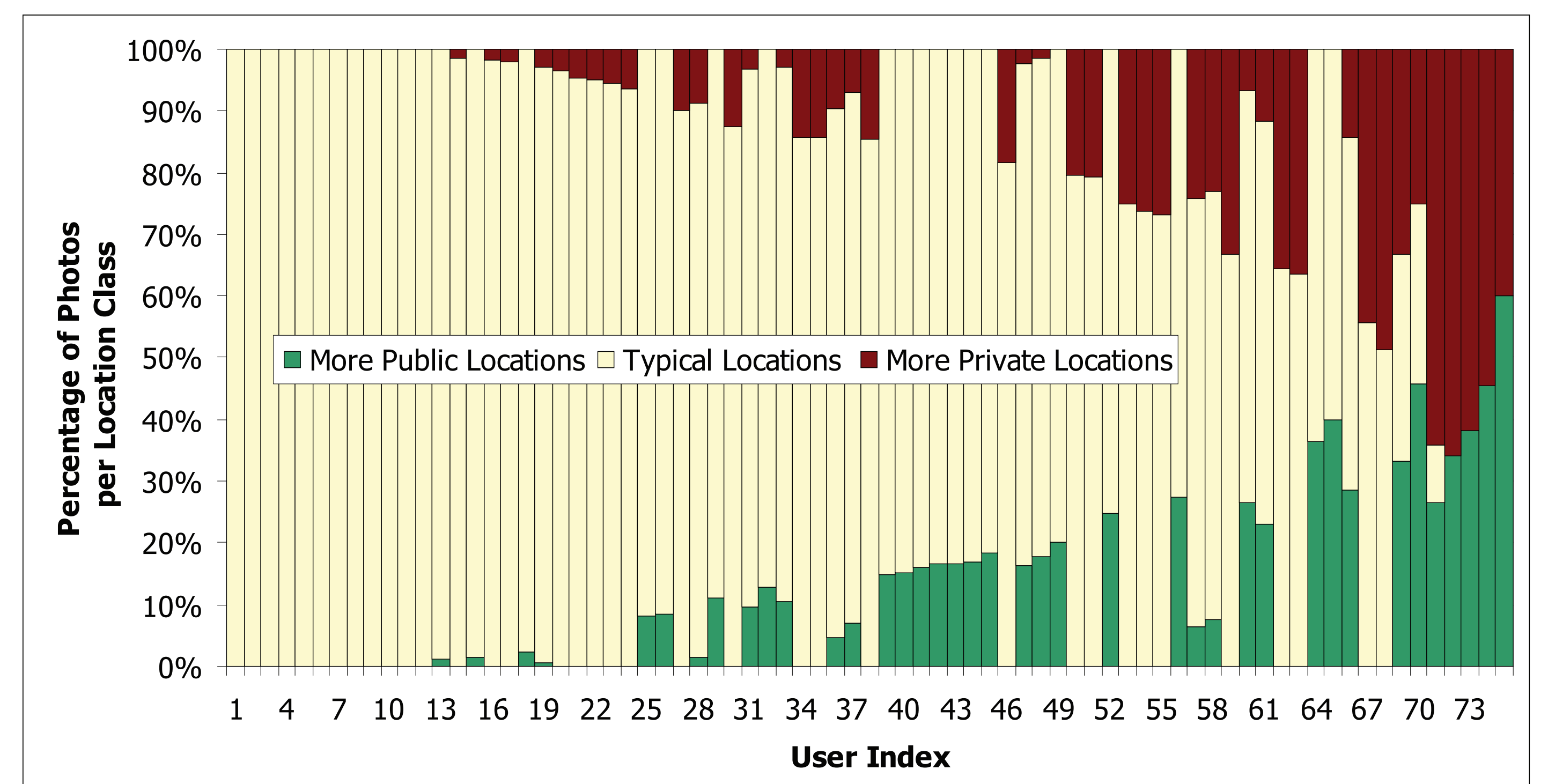
We observed several patterns in per-user privacy changes over time. Each figure shows a representative user's privacy history for each photo taken over time (time moves from left to right); public photos appear as thin black bars above the midline, and private photos appear in gray, below the midline. Some users started taking exclusively public photos, and then switched to mostly private photos. Other users started uploading photos privately, and then changed to primarily public photos. Many users alternated more rapidly between private and public photos.



ABSTRACT

We studied privacy decisions made by users in a system that recorded contextual information (e.g., location, tags, and time) for photos taken with mobile phones. We looked at data from a 3-month long deployment, and conducted interviews with six of the users. We found that content is key when users make photo privacy decisions, and that for some users, the photo location serves as a good predictor for privacy preferences. As for location disclosure, zip-code level disclosure was not a significant issue for most users.

Location Privacy



The figure above explores differences in location privacy for each user in different locations. We show three classes of locations for each user:

- Locations where the user is more likely to make photos public. (bottom bars, green)
- Locations where the local public/private ratio matches the overall norm. (middle, yellow)
- Locations where a user is more likely than usual to make photos private. (top, red)

The location sensitivity of users' privacy decisions clearly varies. Some users (left side of Figure 2) make similar decisions everywhere they take photos. Others show a acute shift in privacy preferences based on the location (right side).

Location Disclosure

"I don't worry about people knowing where I was [when I took a photo]. If I was worried about that, I wouldn't take pictures [that reveal my location]".

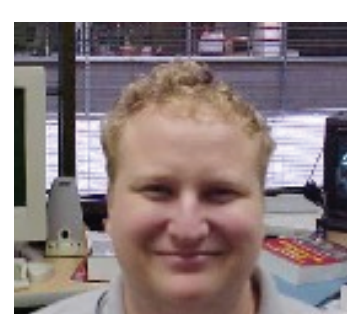
"I wouldn't want people to rob me. [If they] saw a picture of my stuff and knew where I lived I'd be nervous."

"City information is okay, but I'm not sure about zip codes."

"Zip code information is okay, but I don't know about GPS."



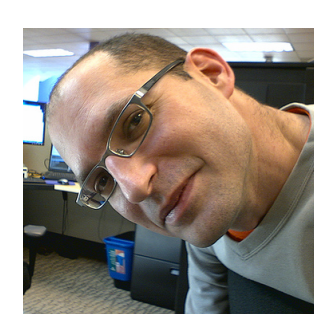
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