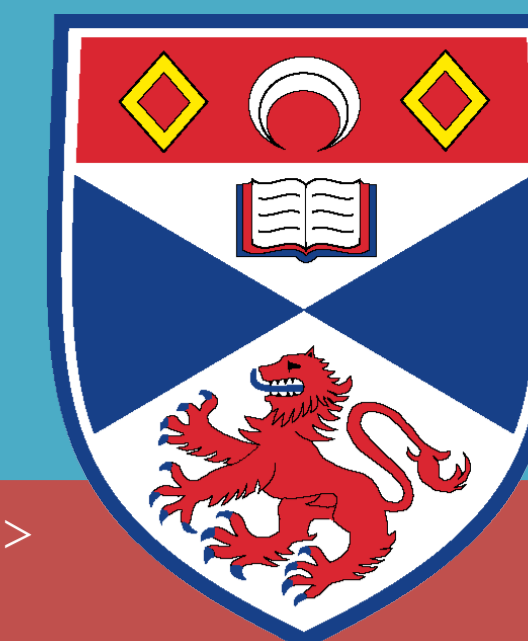


Temporal decay of social networking privacy policies



Social network sites (SNSs) allow people to share content with a self-selected group of peers, and have become incredibly popular in recent years, with more than 800 million active users of Facebook alone. However, there are significant concerns about the usability and value of the tools provided to users to help them manage their privacy policies when sharing content.

Remember this?



When we share things on social network sites (SNSs) we rely on our default privacy policy, or one we have chosen for that content, to determine who can see it and how they can interact with it.

Over time, we build a huge legacy of data attached to our identity. We might have shared a photo with our friends five years ago, but what if our attitudes towards our privacy have since changed? What if our group of friends has changed? The same policy is applied, even though over time its appropriateness has decayed.

Can SNSs use this accumulation of data to anticipate the half-life of our privacy policies for legacy content, and help us replace them with a more appropriate policy?

Conceptualising privacy

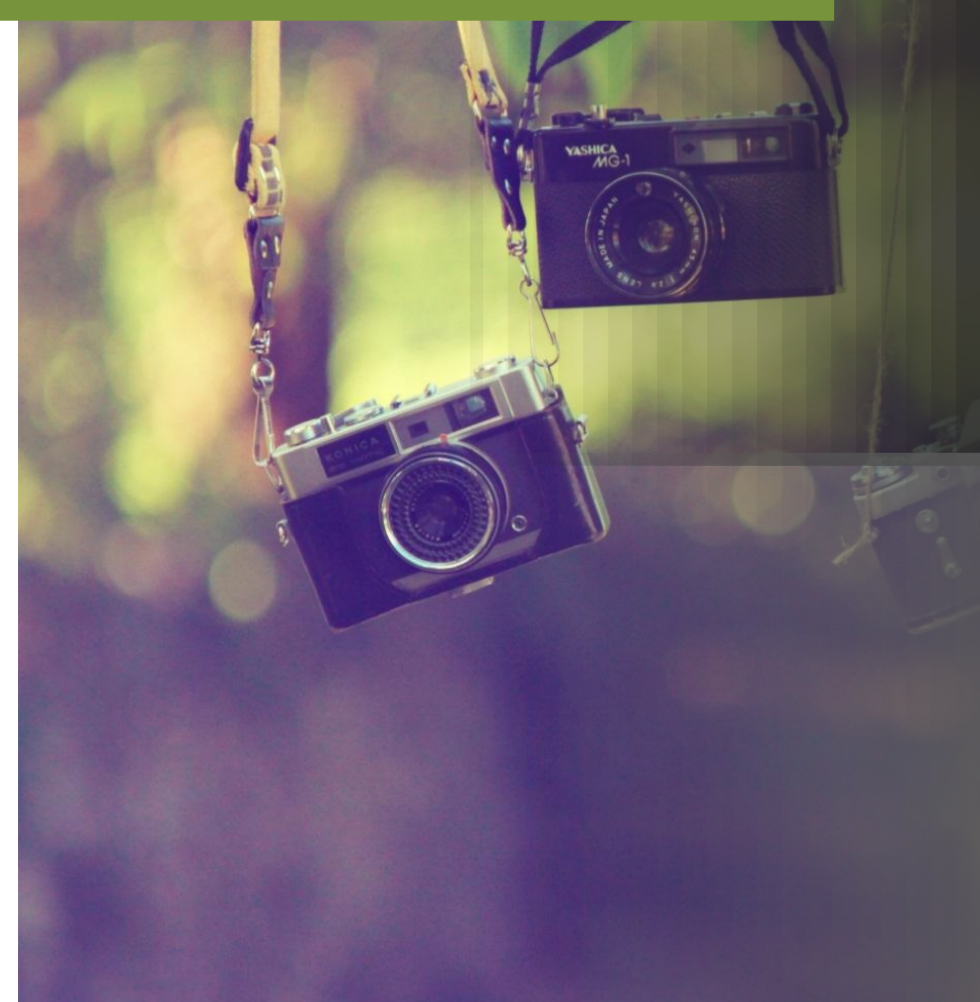


Recent attempts to conceptualise privacy have recognised that our attitudes towards privacy are not immutable – regardless of a previous decision, we may one day wish to revoke personal information made accessible to others, whether that is our phone number in a marketer's list, or a photo we no longer wish to be seen.

Up until recent years, decay has been an inherent aspect of information. Physical records disintegrate, and factual accounts mutate into folklore. Although decay through digital obsolescence is still an issue, it is possible to retain an objective digital representation of data indefinitely. However, is there not value in forgetting? The inevitability of forgetfulness gives information its value [1]. By empowering users to thoughtfully manage the privacy policies for their digital legacy, we can restore this natural lifecycle to information generated via SNSs.

So how do we practically apply this to SNSs? Short of periodically auditing our entire online legacy in search of something embarrassing to hide, the current tools do not make it practical to manage.

What to consider?



In order for SNSs to help us manage our digital legacy, they need to have an internal model of how our privacy policies have decayed, but **which variables come into play?** The age of the user, whether they have just transitioned into a new stage of life, and perhaps their previous behaviour? What about when other people have a stake in the data – such as photos in which several people are tagged? **If everyone's privacy policies decay at a different rate, how do we reconcile this for a single piece of data?**

Resolving the conflicting privacy policies of multi-party data is an active research area, whether using a voting system to try achieve consensus where stakeholders have a difference of opinion [2], or incentivising stakeholders to truthfully represent their privacy policies through a credit system [3]. However, applying these techniques to a temporal decay model is an open problem. The Virtual Walls project [4] has been exploring how context - such as current location, who people are with and what they are doing - affects the privacy policies people choose.

Luke Hutton lh49@st-andrews.ac.uk <lukehutton.co.uk>
Supervised by Tristan Henderson

MEANWHILE, AT THE JOB INTERVIEW...



A methodology for modelling decay

Users who have been using social network sites such as Facebook for several years have already built up a huge legacy of content and interactions.

We can confront people with content they shared years ago and ask them to define a privacy policy for now. Sampling content from different time points, we can determine which aspects of the content correlate with the decision to apply an alternative privacy policy, such as time, data type, or semantic significance, and construct a model to predict which privacy policies should be applied to other content.

We expect to find that it is possible to train a system to determine an appropriate new privacy policy for content shared in the past, and that generally people will want to restrict access to their older content. However, we also expect to find that privacy attitudes do not decay linearly over time, and people will more dramatically realign their privacy attitudes after a change in circumstance (such as graduating from university), or after experiencing a privacy violation (such as someone else sharing an old embarrassing photo of them).

For the Virtual Walls project, we have designed a study using a mobile application to capture privacy policies in a range of contexts. The results of this, and our proposed temporal decay study, will deepen our understanding of what motivates people to choose appropriate privacy policies.

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