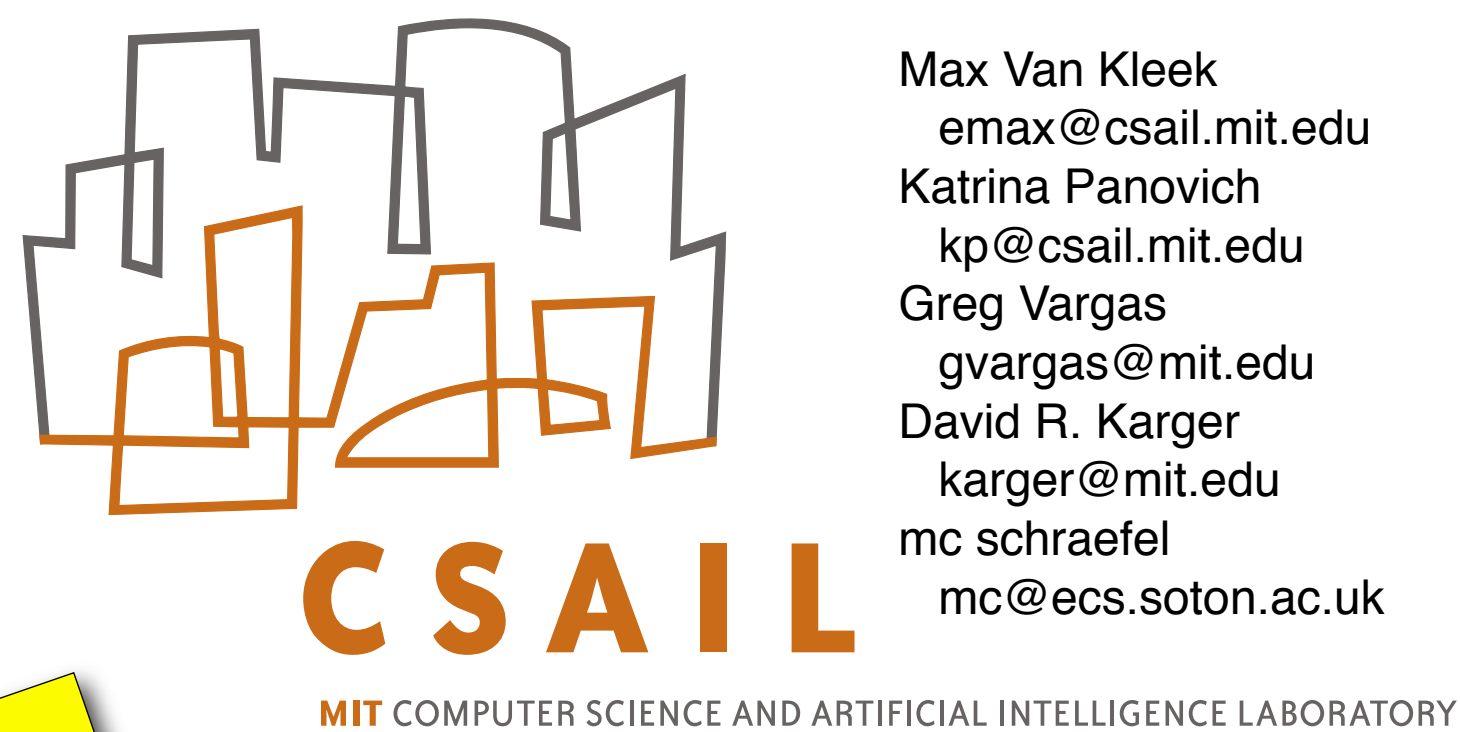


Do you have too many notes to find the one you really need right now?

Introducing: Notes that Float:

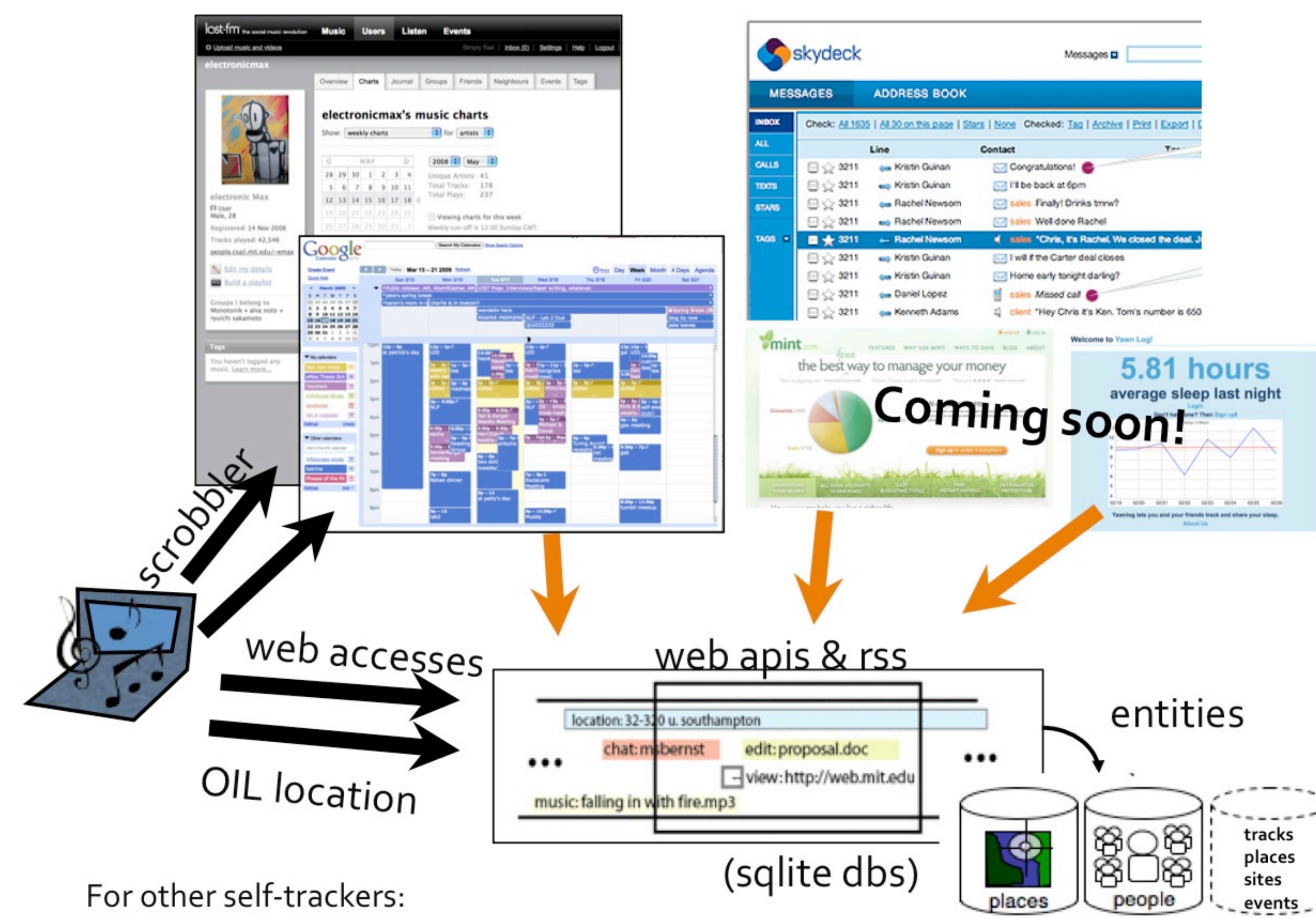
an adaptive approach to reminding that uses note contents and activity context to show you notes when you need them



Step 1: Add activity sources

Hook up NTF to life-tracking sites and sensors that publish RSS/ATOM feeds (or provide open APIs) of *what you are doing* and *when*. For best results, choose sources that have minimal publishing latency.

type of activity tracked	sensing technique	providers
e-mail access	Atom/RSS feeds	Gmail-RSS/ATOM
web page accesses	browser instrumentation	Eyebrowse for Firefox
calendar events	event sites and online calendars	Google Calendar, iCal, various event-listing sites
music listening activity	media player instrumentation	Audioscrobbler (by Last.fm) for iTunes, Windows Media Player
physical location (outdoor)	WiFi for laptops, AGPS (w/ Cell tower) for mobile phones	Google Latitude, Skyhook, W3C Geolocation
physical location (indoor)	Wifi for laptops	Organic Indoor Location (PRUNE)
mobile phone communications (calls placed, messages sent and received)	telecommunication providers	Skydeck, (soon: Google Voice)

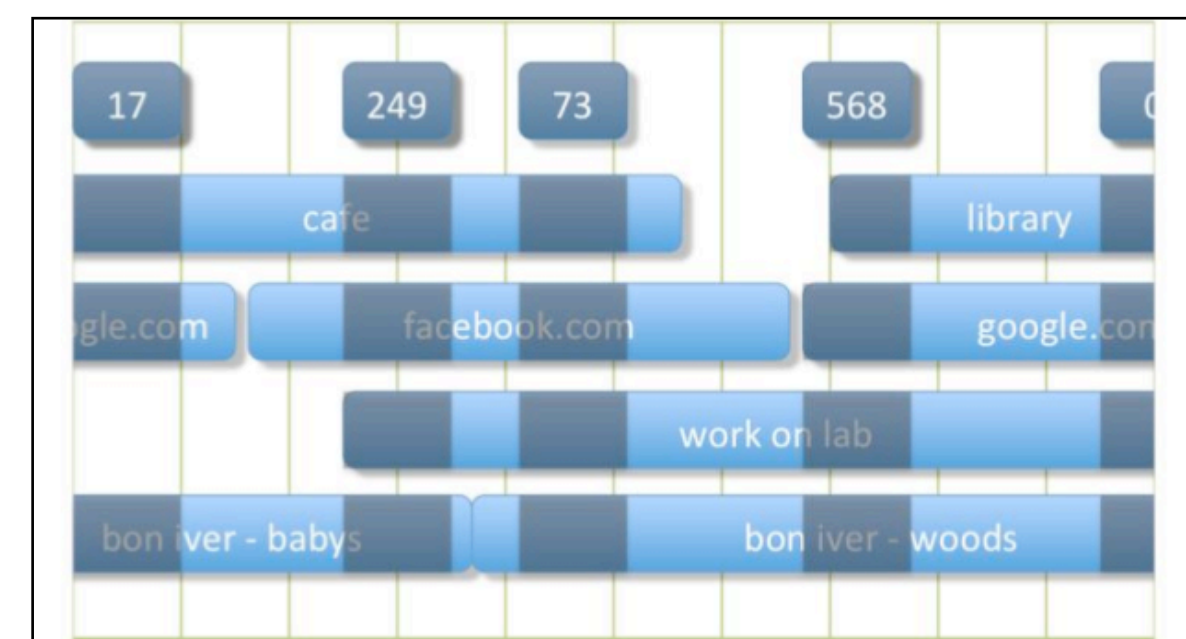


Step 2: Create and edit some notes

NTF is integrated in a simple note-taking Firefox Add-On called List-It. As you create and edit notes in List-It, NTF records every action performed in a chronological database.

Learning associations between notes and activities:

For every interaction logged, NTF examines overlapping activities and contexts. These activities could represent anything provided by life-logging systems in Step 1, such as, for example, where you were (location context), what web page(s) you were looking at (interaction/task context), or what calendar event(s) were ongoing at the time (activity context). For each note, NTF maintains overlap counts with all of the possible values of each activity type.



Using note contents (e.g., dates and times)

Since date and time expressions are useful indicators of when a note is likely to be relevant, NTF uses a date/time expression extractor that spots expressions that refer to dates, filtering for those that occur in the future.

expression	examples	effective alarm
time only	3pm, 3:24, 15:34, 1534hrs	the next time (to hour or min gran.) after $t_{creation}$ that matches
date only	3/31/09, tomorrow,	the day specified. If relative, resolved rel to $t_{creation}$
day-of-week alone or with time	thursday 3pm, thurs., thurs, thurs@3pm, next thursday	the specified time (if any) on the next day satisfying the day of week expression; if "next", the following week

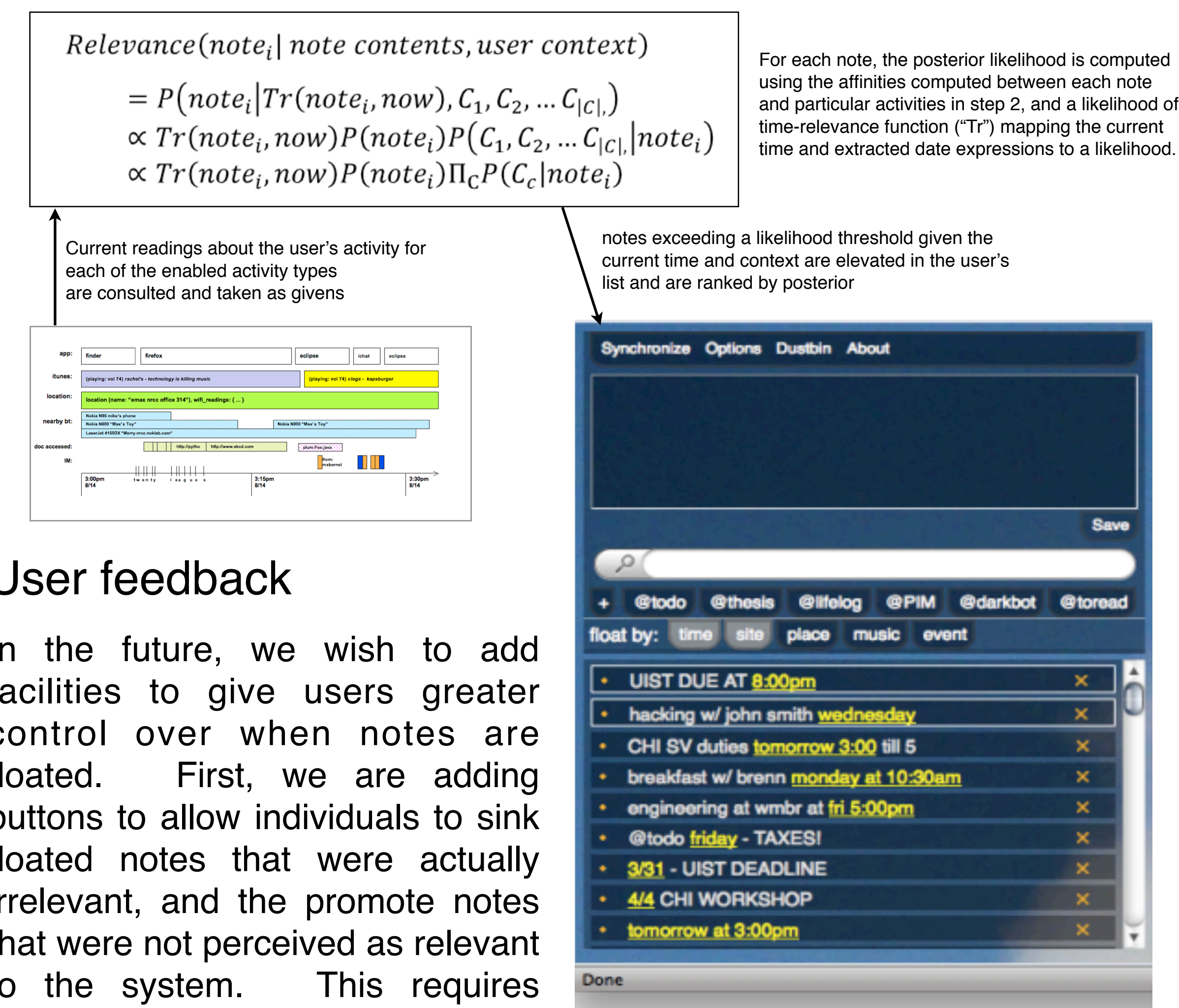
To resolve incomplete date references (such as "Sat"), NTF interprets such expressions to imply the soonest day or day of week after the note's creation date.

NTF will soon be extended to also identify mentions of persons, places, and events, and resolve these against activities and contexts obtained via activity sources. Learning associations between these mentioned entities will allow notes to be floated even if they were never re-accessed. This is important because our previous work has shown that notes are very seldom re-accessed manually.

Step 3: Let them float!

To turn on reminding in NTF, the user simply enables flotation (or leaves it active as he or she works). While flotation is enabled, NTF periodically evaluates the posterior probability of each note given the user's activities and context (as perceived through the activity streams). Those with posterior exceeding a likelihood threshold are chosen to float to the top and highlighted in the UI, ordered by posterior ranking.

The user can optionally select only certain activity types to use in evaluating the posterior; for example, if the user wants NTF to ignore the user's current location, he or she merely deselects "place" in the NTF panel (shown below). By default all elements are included as given terms in evaluating a combined (joint) posterior.



User feedback

In the future, we wish to add facilities to give users greater control over when notes are floated. First, we are adding buttons to allow individuals to sink floated notes that were actually irrelevant, and the promote notes that were not perceived as relevant to the system. This requires revising our simple ranking algorithm to support the reinforcement feedback. NTF will also users to explicitly tag notes with names of events, places and activities so users can explicitly set contextual and activity-based reminders.