

Enabling Emotional Intelligence Online

Munmun De Choudhury

Microsoft Research, Redmond

TED^XWomen 2012

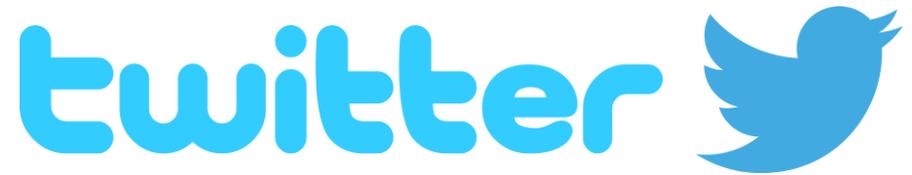
human emotions



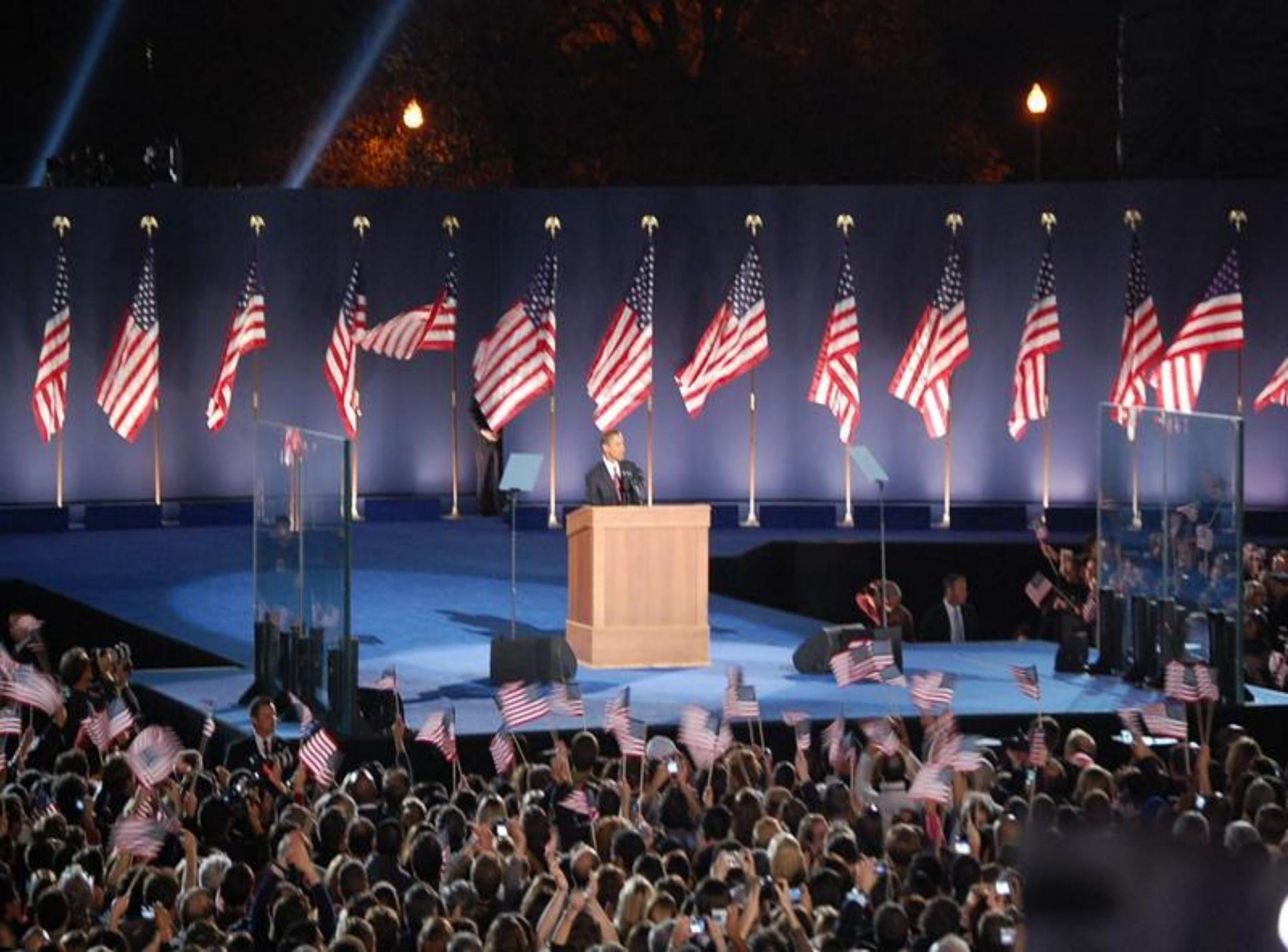
Emotional intelligence (EI) is the ability to identify, assess, and control the emotions of oneself, of others, and of groups
[Wikipedia]



twitter



- An online social media platform that lets individuals share short updates about their lives (140 characters)
 - posts are called "tweets"
 - users can group posts together by topic or type by use of hashtags – words or phrases prefixed with a "#" sign
 - launched in 2006
- 500M active users as of 2012; 340 million tweets daily and 1.6B search queries per day
- among the top 10 visited sites on the internet







twitter is a powerful tool to measure
and assess our emotional experiences

how do we identify, assess our
collective emotional intelligence
that signals our behavior?

insights

- not all moods are created equal!
- behavioral and social attributes affect emotion expression
- large-scale validation of the nuances of emotional expression of individuals – understanding of emotional intelligence at the population scale
- ... however people differ from each other

how do we assess our individual-
centric emotional intelligence to
improve our quality of life?



social media bears potential to serve as a “window” on happenings in individuals lives, whether big or small

one example...

examine patterns of activity and emotional correlates for childbirth and postnatal course leveraging activity and interactions in social media

low-cost, privacy-preserving
mechanisms to identify new mothers'
behavioral changes can improve social
support and encourage postpartum
wellness

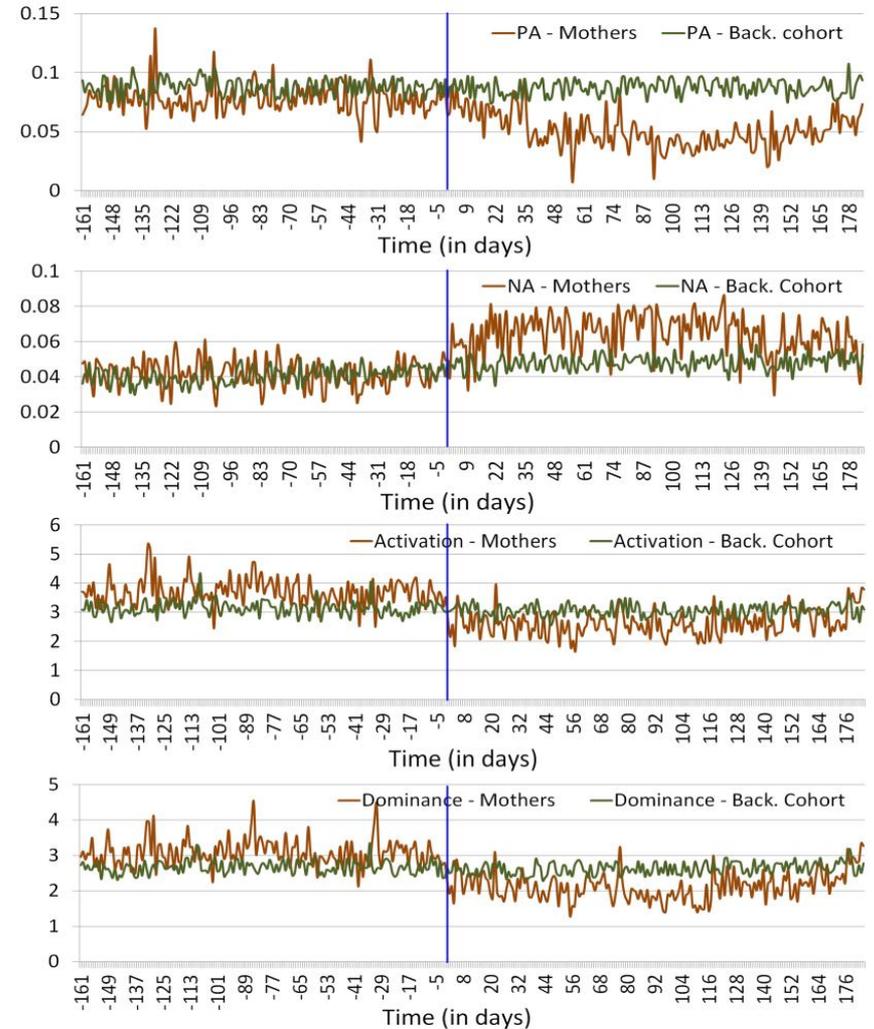
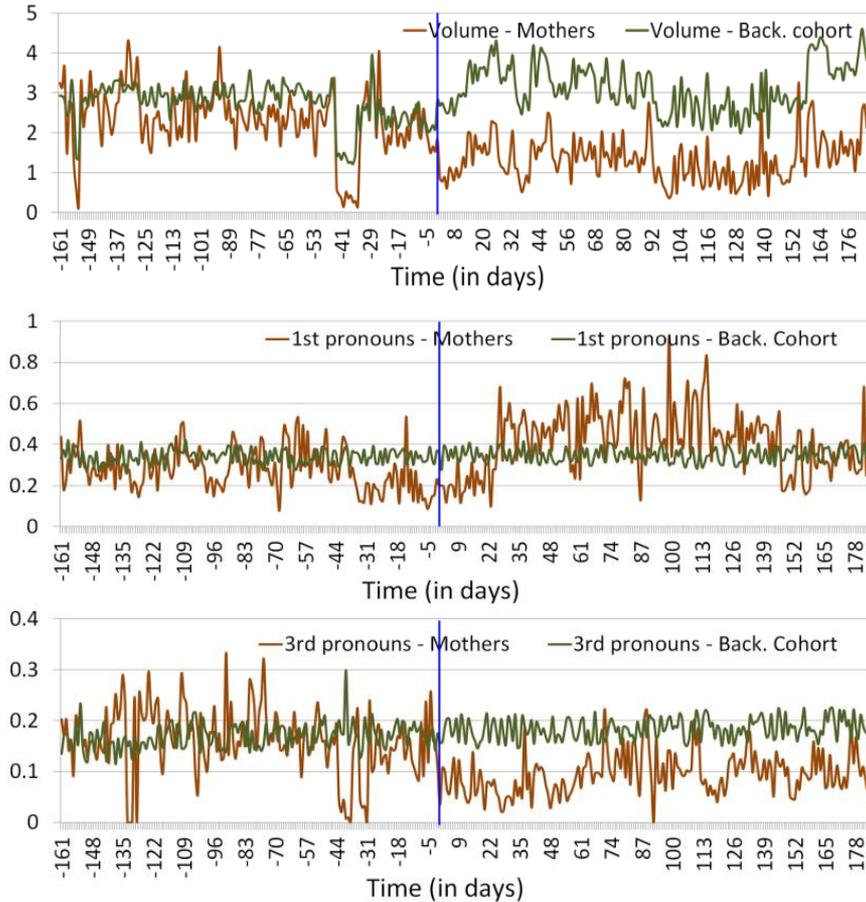
identifying birth events/new mothers

- population of interest—new mothers: female Twitter users with evidence of posting about a birth event.
- Method: identify birth announcement indicative posts

(1) birth, weigh*, pounds/lbs, inches, length/long, baby/son/daughter/boy/girl
(2) announc*, birth of, son/daughter/brother/sister
(3) announc*, arrival of, son/daughter/brother/sister
(4) are the parents of, son/daughter/boy/girl/baby
(5) welcome* home by, brother/sister/sibling*
(6) is the proud big brother/sister
(7) after, labor, born
(8) it's a boy/girl, born

- candidate set of new mothers in a crowdsourcing setup to rule out cases of false positives

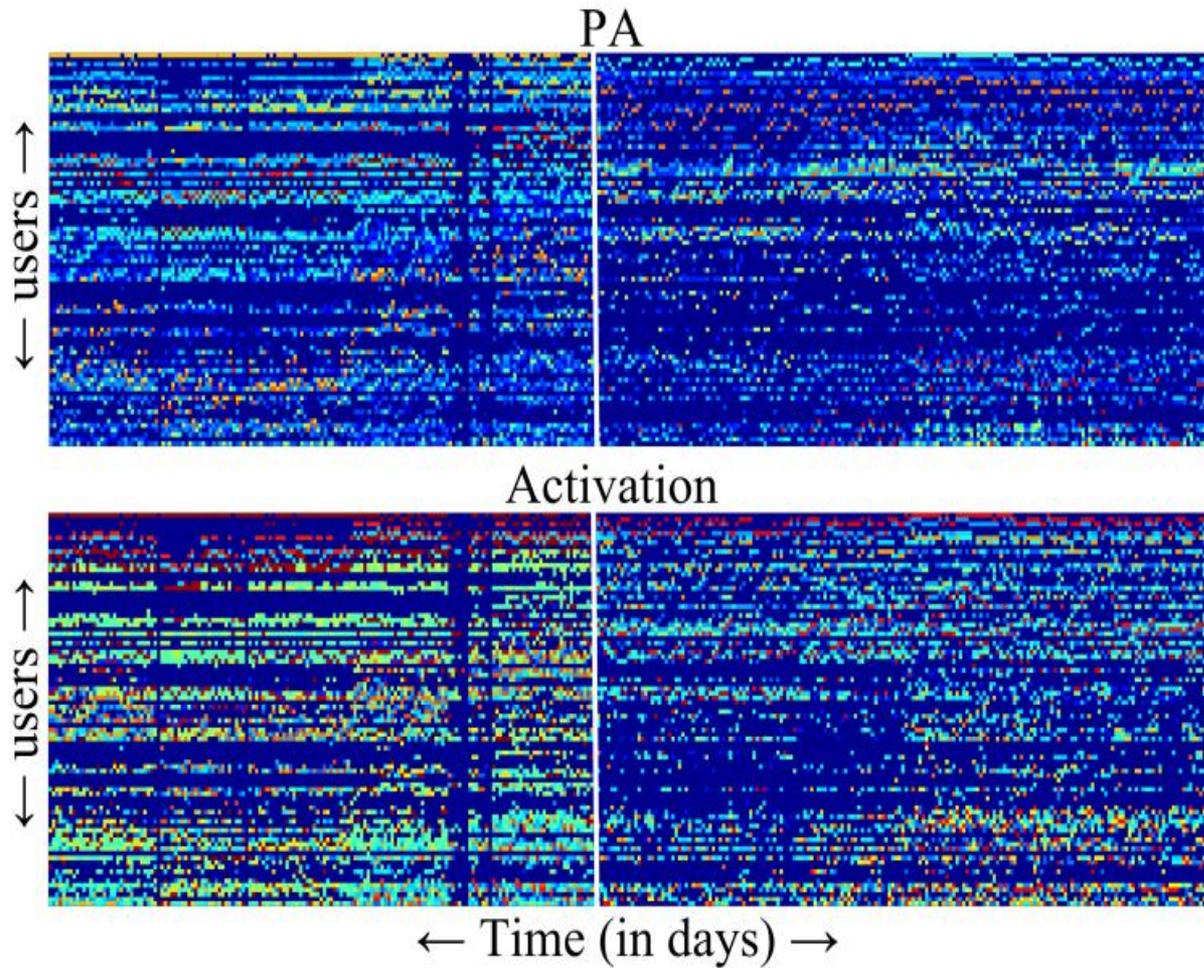
comparison with a background cohort



blue line represents approximate time of childbirth.
The beige line represents mothers and the green line represents the background cohort

do some mothers change more
drastically than others?

individual-level comparison



certain mothers show more drastic change in behavioral measures than others

language differences

background cohort	mothers w/ small effects	mothers w/ large effects
now (↓), shit (↑), back (↑), that (↑), day (↓), life (↑), time (↓), them (↑), me (↑), you (↑), fuck (↑), today (↓), sleep (↑), tonight (↓), love (↓), good (↓), here(↓), her (↓), morning (↑), tomorrow (↑), go (↑), know (↑), him (↓), people (↓)	#past (↑), duh (↑), people (↓), photo (↑), post (↑), decision (↓), reunite (↓), women (↑), story (↑), time (↑), asap (↓), do (↑), life (↓), wait (↑), fired (↑), days (↑), happy (↓)	haha (↓), blessed (↑), lol (↓), #lifecangetbetter (↑), awesome (↓), monthly (↑), fantastic (↓), cuddle (↑), home (↑), love (↓), sick (↑), aww (↑), scary (↑)

top unigrams showing the most change (in usage frequency) in the postnatal period, compared to the prenatal phase

implications

- for a certain number of mothers (14%):
 - activity goes down, PA goes down, NA goes up, activation and dominance go down together, and the use of 1st person pronouns goes up, while that of 3rd person pronouns goes down
 - changes are consistent over an extended period of time
- psycholinguistic research literature (Bucci & Freedman, 1981; Lorenz & Cobb, 1952) reveals these behavioral markers to be associated with depression, isolation, loneliness and lowered self-esteem.
- the 14% mothers identified to exhibit extreme changes align with reported incidence of PPD in the US

what the future holds...

- possibility of leveraging social information networks for unobtrusive diagnostic measures of emotional disorders in new mothers, such as postpartum depression (PPD).
- challenges – ground truth/validation/privacy and ethical concerns (Newman et al, 2011)

the road ahead



Le-shaker.fr

smart interventions, early
warning systems—enabling
individuals to be emotionally
intelligent

moon phrases

word analysis: type a paragraph

submit

analyze twitter feed: enter twitter id

submit

analyze a website: enter url

submit



Twitter Feed Results (~5355 words)

9.8548 seconds

- Pos Words (265 total, 112 unique)
- Neg Words (66 total, 47 unique)
- % Words Positive = 80.060
- % Words Negative = 19.940
- Classification : weighted pos/neg (0.390)
- Pos Proportion = 0.729

affect



most positive -----> most negative

PHASE CHART

2012

NOV



Sun Nov 11 2012

- 22:08 UTC @eegilbert lol. Is that a video rebuttal where people "speak" 5000 characters? =D
- 22:07 UTC RT @hyheng I notice that the deadline for submitting #CHI2013 rebuttals is Sat Nov 19. However, Nov 19 is Monday...So when is it actually?
- 03:42 UTC +1 RT @aaronclauset Journal of Complex Networks, now accepting your best manuscripts (at a working url) <http://t.co/SRN35Osi>
- 03:01 UTC Very cool! MT @katecrawford Check out what the US election results would be if only white men had the vote <http://t.co/vQ7ChITV> via @lawgeek

OCT



SEP



AUG



JUL



JUN



thanks!
questions?

munmund@microsoft.com
[@munmun10](#)