



On the complementary roles of face-to-face and mediated social interactions

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Motivation

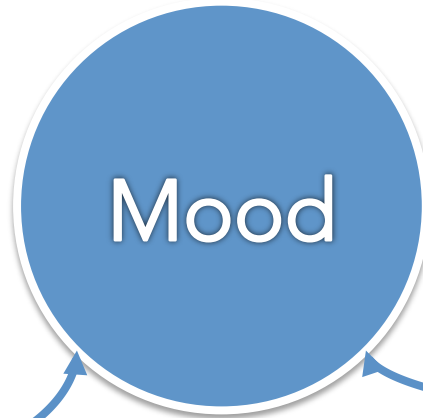
Mediated interaction (Phone, Text ...)



Face-to-face interaction



Motivation



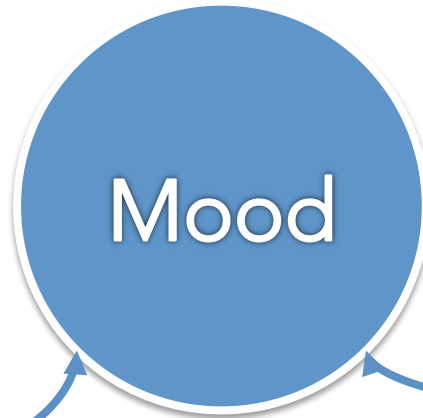
Mediated interaction (Phone, Text ...)



Face-to-face interaction



Motivation



Ongoing: can we find a deeper underlying connection?

Mediated interaction (Phone, Text ...)



Face-to-face interaction



Previous Work

- Understand the affects of using Facebook, E-Mail and face-to-face interactions in the workplace¹
 - 5 days experiment limited to the workplace.
 - Face-to-face associated with a positive mood throughout the day.
 - Facebook use associated with a positive feeling at the EOD.
 - E-Mail use associated with negative affect
- *Methodological*²:
 - Constructing social interactions graphs²
 - Using Bluetooth scans/proximity networks as a face-to-face proxy.^{2 3}

¹ Capturing the Mood: Facebook and Face-to-Face Encounters in the Workplace, Mark et al.

² Friends don't Lie - Inferring Personality Traits from Social Network Structure, Staiano et al.

³ Inferring Social Network Structure using Mobile Phone Data. PNAS, Eagle, et al. (2007)

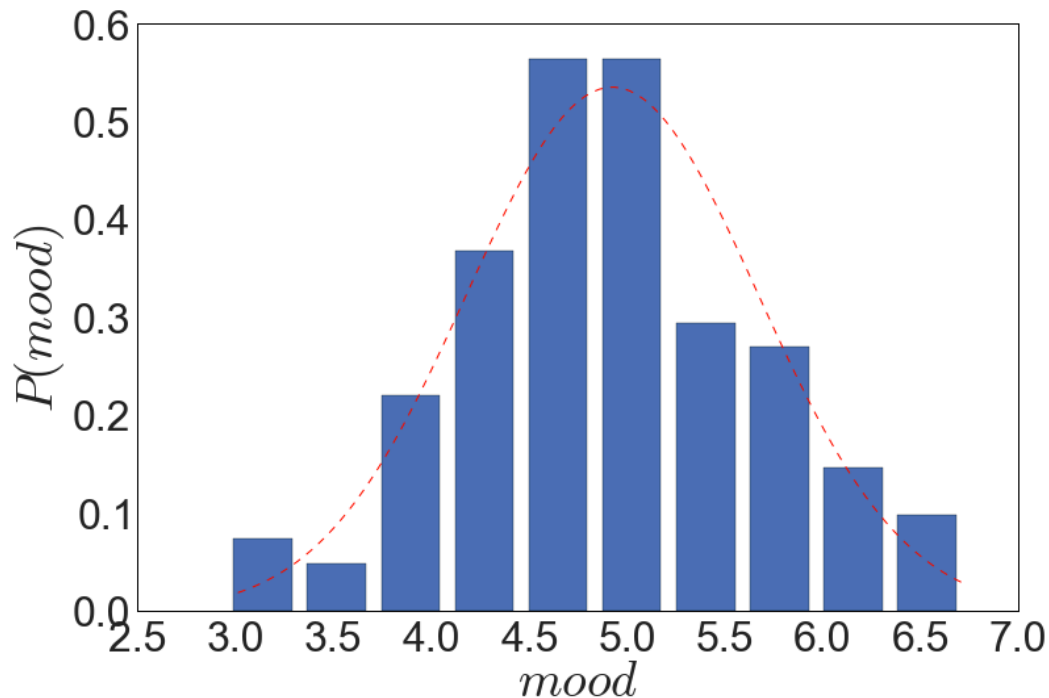
Datasets – Friends and Family

- 12 months tracking of a closed community of couples affiliated with a major research university (n=130)
- Sensing: BT scans (5m intervals), Call & Text logs



Datasets – Friends and Family

- **Surveys:** daily surveys. Mood measured on a 1-7 normal scale.



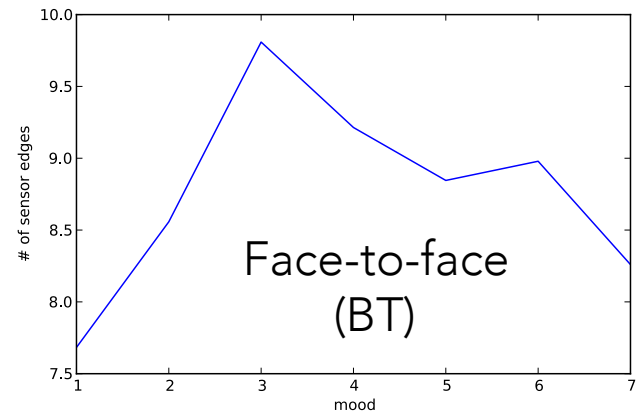
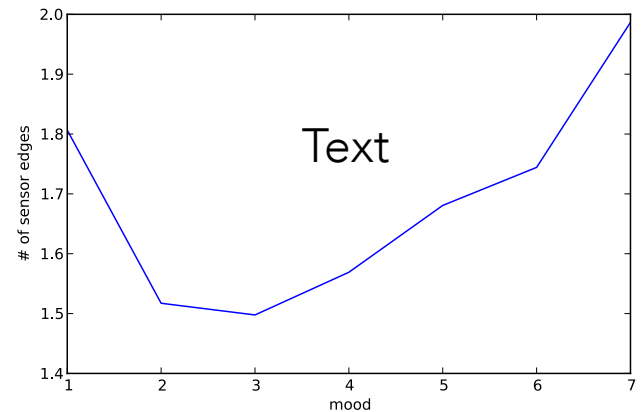
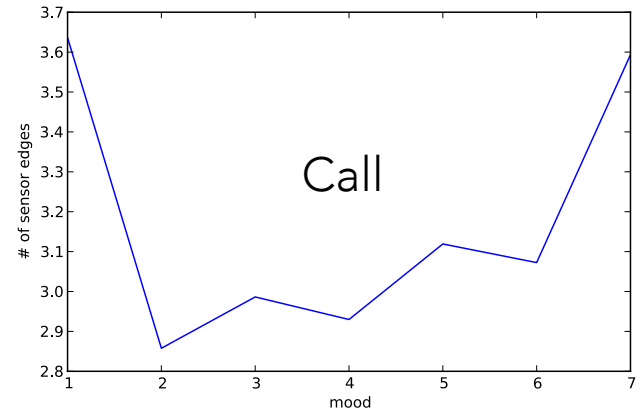
Datasets – Mobile Territorial Lab

- N=70 participants, over the duration of 6 weeks.
- **Sensing:** BT scans (5m intervals), Call & Text logs.
- **Surveys:** daily surveys. Mood measured using the Positive and Negative Affect Schedule (PANAS).
 - Computed the rounded average PA to create a 1-5 scale.



Main Results

- Mediated interactions (Call/Text) follow **similar patterns**.
- **Complementary relation** between mediated and face-to-face interactions.
- **Extreme mood** (happy/unhappy) correlates with **calling/texting**.
- **Moderate mood** correlates with more **face-to-face** interactions.



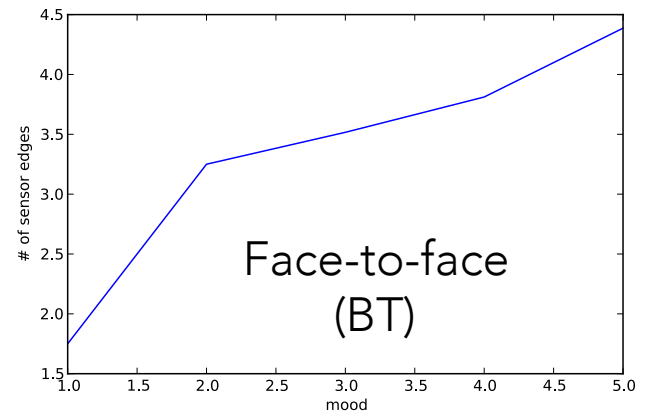
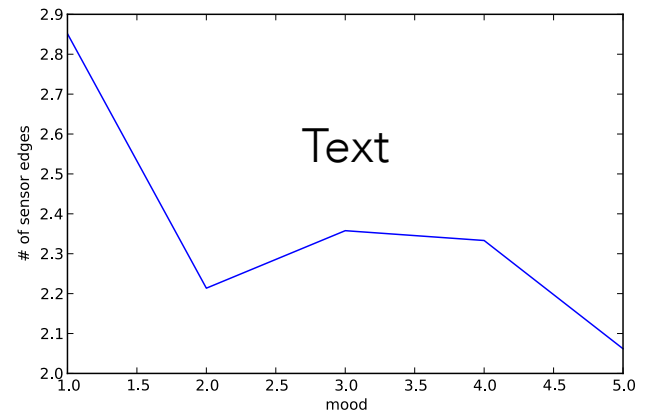
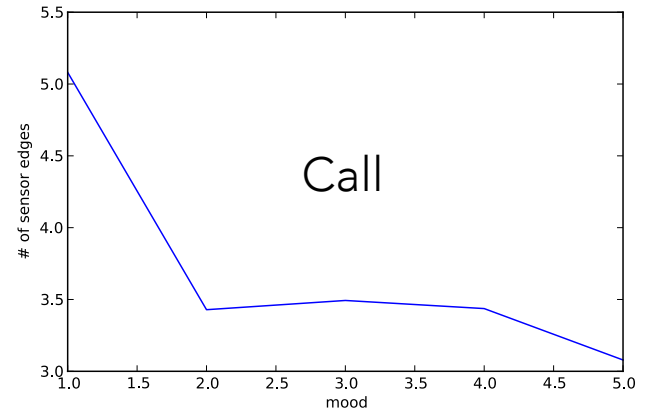
Main Results

- Using t-test to compare pairs of means, we found that the results are statistically significant

Call	pairs	t-stat	p-value
	(1,4)	2.23	0.0287
	(4,7)	-6.46	1.474e-10
	(1,7)	-0.08	0.931
Face-to-face (BT)	pairs	t-stat	p-value
	(1,4)	-3.09	0.00319
	(4,7)	6.24	6.396e-10
	(1,7)	-0.55	0.584

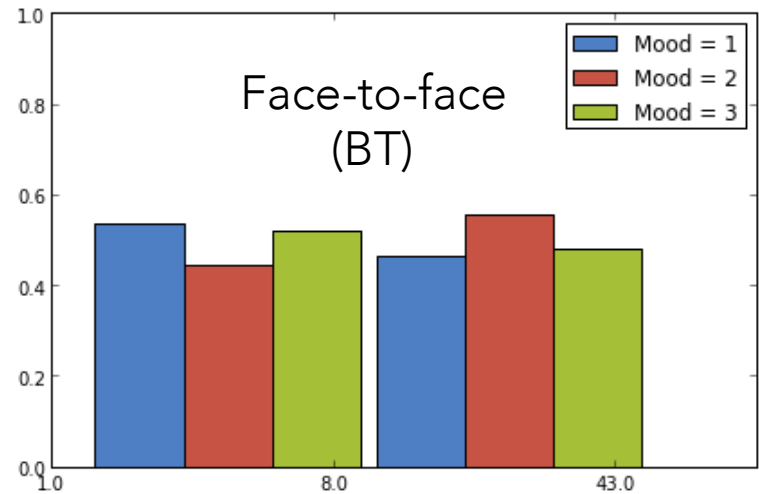
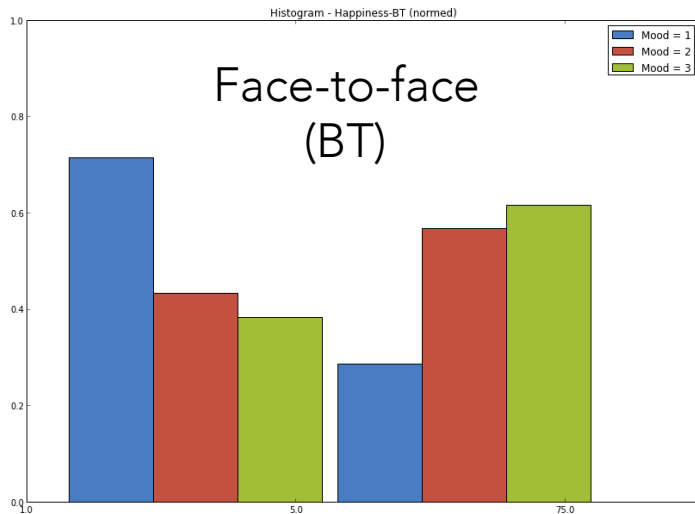
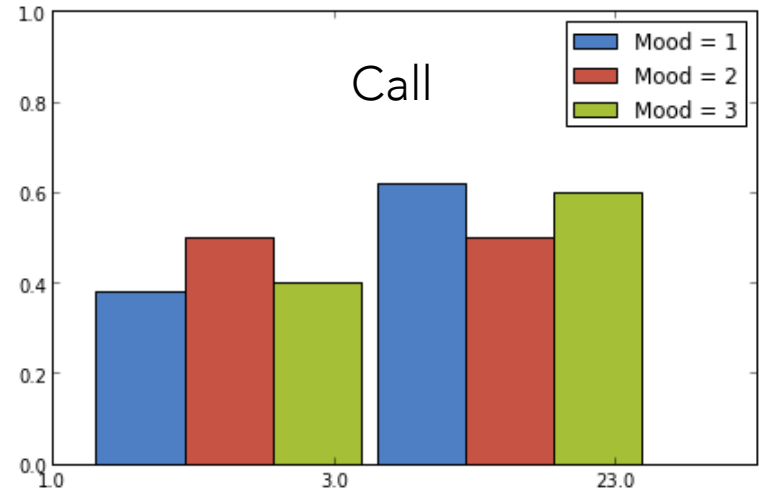
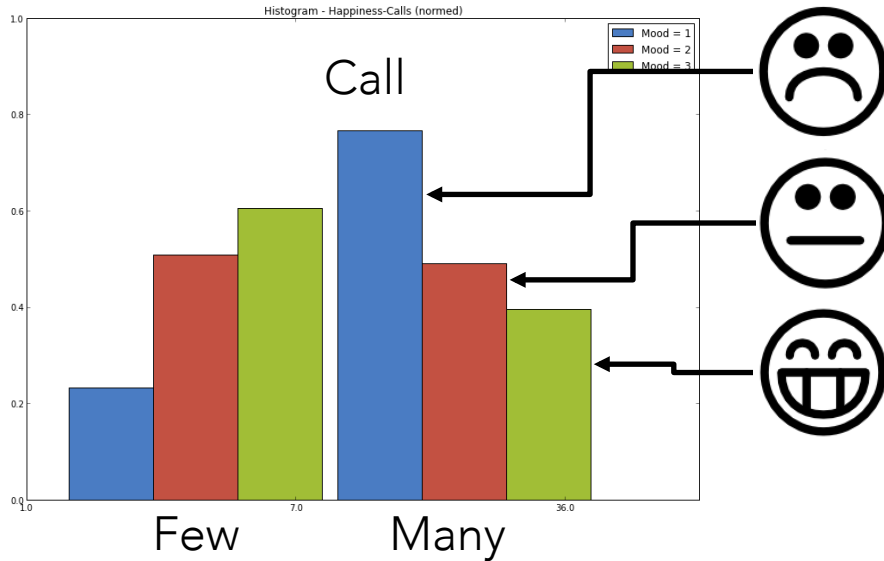
Main Results

- Using **PA** questions.
- Same **complementary pattern**.
- Results also hold for average **NA** (opposite pattern).



Mobile Territorial Lab

Friends and Family



Applications

- Predicting well-being through CDR/
Spatiotemporal data.
 - Data is common and readily available
- Learning how our interaction patterns
reflect our mood.
- Understanding how remote
communication relates to 'classical' face-
to-face communication.
 - This is a starting point. Much more to explore!

Conclusions and Future Work

- Depending on the mood, people use different communication methods.
- Mediated methods are comparable and complementary to face-to-face interaction.
- When people are *very unhappy* they call more and go out less.
- In future work, explore:
 - Controlling for personality traits, strength of ties, sleep.
 - Examining this relationship in more detail, looking for an underlying causal explanation.
 - Generalize beyond mood.

Questions?

