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Artificial Conversational Intuition

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Microsoft Research Faculty Summit 2017
Conversations take place on two channels

1: Directly communicating information
Conversations take place on two channels

1: Directly communicating information

2: Meta-information about the conversation unknowingly & unwillingly

Subtle signals, e.g.,
body language
style matching
paralinguistic cues
Meta-Conversational channel

Off-line: conversational intuition aligns intentions and perceptions (Tannen, 2005)
Meta-Conversational channel

Off-line: conversational intuition aligns intentions and perceptions (Tannen, 2005)

On-line: these signals are muted we aren’t (yet) attuned to new signals
Lost meta-conversational channel

→ misaligned intentions and perceptions

Perplexing Conversational failures online:
Lost meta-conversational channel
→ misaligned intentions and perceptions

Perplexing conversational failures online:
› 40% users personally harassed online (Pew Survey, 2014)
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▷ Most attacks made by “regular” users!
  (Cheng, Bernstein, D-N-M, Leskovec, 2017; Wulczyn et al., 2017)
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Online platforms need to compensate...
Proof of concept:

Misalignment of intentions and perceptions

"Linguistic harbingers of betrayal"
(Niculae, Kumar, Boyd-Graber, D-N-M, 2015)
Proof of concept:

Misalignment of intentions and perceptions

Betrayal presupposes a trust relation
(unlike deception)

Work on deception:
[e.g., Newman et al. 2003, Hancock et al. 2007, Mihalcea & Strapparava 2009, Ott et al. 2011]
Friendship

Betrayal

Enmity

Friendship
"9th circle awaits you!"
Can we detect signals of **upcoming** betrayal?
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Tricky because:

› betrayers actively hide it
Can we detect signals of **upcoming** betrayal?

Tricky because:

- betrayers actively hide it
- victims do not see it coming
Can we detect signals of *upcoming* betrayal?

Main intuition:

misalignment will be reflected in imbalances in conversational patterns
Misalignment
via conversational imbalance

Sentiment imbalance

Friendship time

Enmity

Betrayal
Misalignment via conversational imbalance

Sentiment imbalance

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Sentiment

cf. Gottman (1993): stable relations are affectively balanced
Planning imbalance

Misalignment via conversational imbalance

Planning imbalance

Friendship time

Enmity

Betrayal

Planning

cf. Christensen (1990): Demand-withdraw pattern
It's not me it's you.
Artificial Conversational Intuition
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- recover key meta-conversational signals
- predict undesired outcomes
- act to keep conversations on track
Artificial Conversational Intuition

› recover key meta-conversational signals
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Socially sensitive...
  ... online discussion platforms
  ... reply suggestions
  ... conversational assistants
Pannel
Thank you