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Uncovering Value Dynamics in Conversations Using Computational Methods

This master's thesis explores how computational methods, primarily Natural Language Processing (NLP), can be used to uncover explicit and implicit value dynamics in conversations. In high-stakes settings—values often influence decisions without being clearly articulated. This research addresses that gap by prototyping a method that can help surface and analyze those hidden dynamics, aiming to improve decision quality and foster more intentional, reflective outcomes.

How can computational methods be used to uncover and analyze value dynamics in conversations in ways that are meaningful for decision makers?

To answer this, the project follows a Research through Design (RtD) methodology — unfolding through iterative prototyping, deployment, observation, and refinement. The prototype serves both as a tool and a lens to test technical feasibility and uncover new insights on how values emerge in conversation.

A computational method was developed using sentence embeddings and cosine similarity to assign values to utterances. The model was trained on custom-crafted value definitions and diverse examples of how values are expressed in real conversations. It was tested and refined through deployment at a conference and grounding through workshops.

Averaging the similarity score of the utterance to the example utterance for a particular value

● Example Utterance Embedding
● Utterance Embedding

Value Expression Gap
Identifies the gap between professed and expressed values, offering a new concept to support reflective and value-sensitive design.

A New Lens on Values in Dialogue
Introduces a new way to detect and interpret values in conversation, moving beyond self-reporting to capture what's left unsaid.

The Impact of Making Values Visible
Shows how surfacing hidden or unspoken values can reveal tensions, blind spots, and alignment opportunities in collaborative decision-making.

Designers' Role and Collaborative Dynamics
Invites a rethinking of how designers engage with AI tools — not just as facilitators but as stewards of transparent and ethical design.

Role of AI in Decision-Making
Repositions AI as a reflective partner in decision-making, supporting human meaning-making instead of replacing it.

Step 01: Transcription and Segmentation

Step 02: Sentence Embedding Generation

Turning the utterance from transcript and value dataset utterances into points in high-dimensional spaces.

Step 03: Average Similarity Calculation per Value

Comparing the utterance to each example and then taking an average of the score per value.

Step 04: Value Elicitation

The highest score is the closest value match.

Example:

“That’s why I pushed for that ambient feedback system. People shouldn’t need a manual to figure out how it fits into their day.”

Value	Value Type	Motivational Goal
usability	Use Value	utility
time management	Use Value	utility
functionality	Use Value	utility

To assess real-world relevance, decision-makers across sectors were interviewed. This led to seven concrete use cases (see below) — two external-facing (e.g. stakeholder alignment, tailoring pitches) and five internal (e.g. strategic solutions, team reflection, improving communication) — highlighting the tool’s potential in practice.

Align Internal Culture with Professed Values

What we say we believe isn't always how we behave.

Improve Leadership Communication

Your words shape the culture — even when they miss the mark.

Find Opportunities Through Misalignments

Different values can still build the same bridge.

Track Cultural Shifts Over Time

Values evolve — are you keeping track?

Build High-Trust, Values-Aligned Teams

Aligned values make stronger teams — misaligned ones

Assess Collaboration or Stakeholder Fit

The wrong values match costs more than a missed deal.

Tailor Stakeholder Pitches and Negotiation Strategies

You can't sell meaning if you don't know what matters.

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