

# Language in Context: Incorporating Demographic Embeddings into Language Understanding

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## Abstract

Meaning depends on context. This applies both in obvious cases like deictics or sarcasm as well as more subtle situations like framing or persuasion. One key characteristic of context is the identity of the participants in an interaction. Our interpretation of an utterance depends on a variety of factors such as our personal history, background knowledge, and our relationship to the source. While demographics allow us to capture some of this variance, the relevance of specific demographic factors varies across contexts. To address these challenges, we introduce a method for combining demographics and context into situated demographic embeddings—mapping representations onto a continuous space appropriate for the given domain. We further demonstrate how to make use of related external resources so as to apply this approach in low-resource situations. We show the resulting representations to be interpretable and consider domain-specific similarity. Finally, we show how these representations can be incorporated to improve modeling of a real-world natural language understanding task.

**Keywords:** demographic representation; continuous representations; moral reasoning