Can a dialogue system automatically learn user intents from unlabelled dialogues?

play lady gaga’s bad romance

Unlabelled Single-Turn Request

... is an American singer, songwriter, and actress.

... is a song by ...

Domain Knowledge

Spoken Dialogue System / Intelligent Assistant

Yun-Nung (Vivian) Chen, Ming Sun, Alexander I. Rudnicky, and Anatole Gershman

Matrix Factorization with Domain Knowledge and Behavioral Patterns for Intent Modeling

Intent Prediction

Lexical

Enriched Semantics

Intent

Reasoning with MF

Self-Train Utterance

Test Utterance

App Desc
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1) User preference
2) App-level contexts

Intent Prediction

Spoken Dialogue System / Intelligent Assistant