

## 3.20 Speech-Based Just-In-Time Information Retrieval

### Keywords

Just-in-time information retrieval; real-time document recommendation; speech-based retrieval; meeting assistants

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### Corporate Sponsorship Program

See Section 4 of the present document

### File reference & version number:

N/A

## Functional description

We have designed a system that uses words from a conversation between users to create implicit queries, submits them to a search and retrieval system, clusters the results and displays suggestions of documents that are potentially relevant to users at a given moment in the conversation. At the core of the system lies an algorithm that extracts a relevant and diverse set of keywords from a conversation fragment, avoiding ASR noise. These are then clustered according to conversation topics. Retrieval results from several implicit queries are merged and ranked by rewarding diversity. Moreover, we can also allow users to ask explicit queries in speech, and expand them based on the conversational context.

## Innovative aspects

- Extract relevant and diverse keywords, avoiding noise
- Use topical clustering to formulate implicit queries
- Rank results by rewarding diversity
- Expand explicit queries using context

## Commercial application examples

- Real-time document recommender system in meetings
- Document recommender for lecture recordings

## More information

Maryam Habibi and Andrei Popescu-Belis, “Keyword Extraction and Clustering for Document Recommendation in Conversations”, in *IEEE/ACM Transactions on Audio, Speech and Language Processing*, 23(4):746–759, 2015.

## Software & IPR status

Research software, demonstrator (Idiap Showroom).