DICIT Technologies

- Multi-channel acoustic echo cancellation
- Blind source separation
- Adaptive beamforming and dereverberation
- Acoustic event detection and classification
- Multiple speaker localization
- Speaker identification and verification
- Distant-talking automatic speech recognition
- Natural language understanding
- Mixed-initiative dialogue
- Adaptive user profiling and customization
- Voice/haptic multimodality

Other applicative contexts

- DICIT technologies may be fruitfully re-used in other applicative areas as home automation, surveillance, and automotive telematics.
- In particular, home surveillance represents a second domain to investigate during the project.

Foreseen prototypes

- Distant talking spoken dialogue in three languages (D/E/I)
- Anti-intrusion acoustic monitoring

Distant-talking Interfaces for Control of Interactive TV

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Information Society Technologies
DICIT addresses the development of advanced technologies for speech/acoustic processing and interpretation based on multi-microphone devices.

**The interactive TV scenario**

The project focuses on a novel concept of interface to TV related devices. The DICIT system shall understand commands spoken by multiple users in a living room, even in the presence of background noise and TV surround audio propagated in the environment.

**Main challenges**

- Detect and interpret acoustic events.
- Free the user from typical constraints as close talking and restricted language.
- Ensure robust performance under adverse noisy conditions and room acoustics.
- Realize a mixed initiative dialogue and learn user’s preferences.
- Complementary use of voice and remote control.

**Functionalities**

- TV/STB control by voice
- Advanced search in EPG

DICIT handles a multiple speaker context

The microphone array allows spatially selective capturing/enhancing of the active speakers

Output of surround system is dynamically compensated and ignored for speech recognition

DICIT identifies and rejects non-speech events

Voice command complements remote control

DICIT, pause this program!

DICIT, what movies are on tonight?