Cognitive Systems and Robotics
From theory to practice: Methods for an adaptive and prolonged child-robot interaction

The goal of ALIZ-E is to develop novel methods for developing and testing interactive, mobile robots which will be able to socially interact with human users over extended periods of time, i.e. a possibly non-continuous succession of interactions which can refer back to, and build forth on, previous experiences. To demonstrate and evaluate the scientific methods, ALIZ-E will instantiate and evaluate these methods in a succession of integrated systems that interact with hospitalized children undergoing diabetes treatment.
The theory and practice of ALIZ-E will impact on theoretical cognitive systems research (e.g. memory, long-term affective interaction), implementation (e.g. cloud computing for cognitive systems, speech processing for young users) and ultimately commercial applications of these technologies.

The goal of ALIZ-E is to develop methods for developing and testing interactive, mobile robots which will be able to interact with human users over extended periods of time, i.e. a possibly non-continuous succession of interactions which can refer back to, and build forth on, previous experiences. To achieve this aim, ALIZ-E will address three related issues in developing interactive robots capable of self-sustaining medium- to long-term autonomous operation in real-world indoor environments. One, ALIZ-E will address how long-term experience can be acquired, to ground actions and interactions across time. Two, ALIZ-E will address how a system can deal robustly with inevitable differences in quality in perceiving and understanding a user and her environment. To this end, novel methods for adaptively controlling how a system invokes and adaptively balances a hybrid ensemble of processing and behaviours. Third, ALIZ-E will address how a system can adapt its interaction based on how user behaviour changes over time and contexts. To demonstrate and evaluate scientific methods, ALIZ-E will instantiate and evaluate these methods in working systems that interact with hospitalized children undergoing diabetes treatment. Long-term interaction in this context means interactions over a period of up to 5 days (possibly longer). Choosing this scenario, ALIZ-E makes it possible to bring existing extensive experience in conducting clinical trials of IT technology to the field of cognitive systems and human-robot interaction, to help develop novel methods for evaluating interactive robots at system-level. The theory and practice of ALIZ-E will impact on theoretical cognitive systems research (e.g. memory, long-term affective interaction), implementation (e.g. adaptive deployment of processing and behaviour for robust interaction, cloud computing for cognitive systems, speech processing for young users) and commercial applications of these technologies.

Programme(s)

Topic(s)

Call for proposal

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