

Core Dialogue Research

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MITRE Sponsored Research



Problem

- **Computer-based dialogue systems have not been useful to sponsors because they:**
 - can't handle complex conversations
 - must be custom-built for each new domain
 - are difficult to evaluate, and therefore improve.

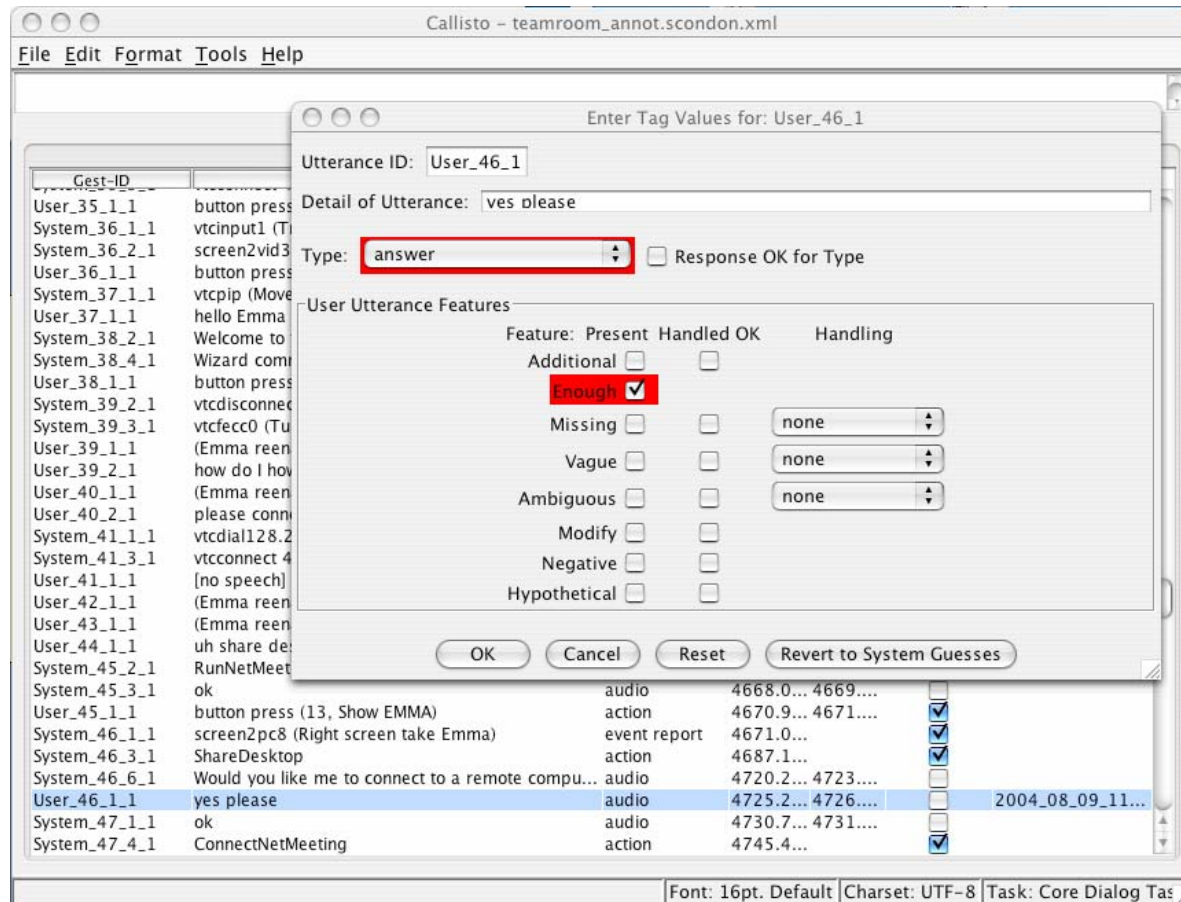
Objective

- **For the overall research project:**
 - To advance the state of the art of operational dialogue managers (DMs) rightward along a complexity continuum
 - To develop a new paradigm for the **development** and **evaluation** of dialogue managers
- **For this third and final year:**
 - Finish porting the MITRE Dialogue Kit (Midiki) to new domains:
 - ConnectMe: voice-based company directory
 - Emma: avatar-based conference room equipment assistance/tutorial
 - Evaluate:
 - Effectiveness of these new DMs
 - Efficiency of porting a DM to these new domains

Activities

- **Developed new Information-State DM toolkit**
 - Midiki released to SourceForge
 - Several research groups are using it
- **“Porting Challenge”: parallel implementations with existing DMs and our toolkit**
 - Team room synthetic agent for tutorial/Q&A
 - DMs: COLLAGEN and Midiki
 - Phone directory
 - DMs: Nuance, Ariadne and Midiki
- **Evaluation tools and metrics**
 - Instrumented logs for ported dialogue systems
 - Developed transcription and annotation tools

Highlight



Dialogue annotation tool facilitates evaluation

Demonstrations



Emma,
bring up
PowerPoint



Okay



Dialogue in the Experimental Team Room and with ConnectMe

Impacts

- **Transition dialogue research out of the laboratory into sponsor hands**
 - First step is transition to ISIS and Team Room
- **Collaboration with DM researchers**
 - Sheffield University, Northwestern, NASA/RIACS
- **Internal collaborations**
 - Partnership with Perceptive Agents MSR
 - Support for cross-center Computational Dialogue Reading Group
 - Support for New Work in Language Technology Speaker Series

Future Plans

Integrate operational DM for sponsor in follow-on work



The screenshot shows a web browser window titled "Midiki: MITRE Dialogue Kit" with the URL "http://midiki.sourceforge.net/". The page features a logo with the word "MIDIKI" in large, gold, stylized letters, with a green palm tree graphic integrated into the letter "I". Below the logo, the text "MITRE DIALOGUE KIT" is displayed in a smaller, gold, sans-serif font. The page content is organized into sections: "Problem", "Objective", and "Status".

Problem

Dialogue managers (DMs) are of increasing interest to interface developers, but have not been as useful as they could be. Most existing dialogue managers are not built from existing components; instead, they are knocked together by interface developers without input from linguists. The resulting interfaces are not flexible enough to handle conversations of moderate complexity, multiple modalities, or more than two participants, or to be adapted to new conversational tasks or domains without considerable effort.

Existing dialogue toolkits either focus on the needs of linguists and are difficult to field and evaluate, or focus on the needs of individual developers and provide little or no visibility into what linguistic theories they may embody.

Objective

Our objective with Midiki is to bridge that gap. We want to develop a toolkit that is friendly to linguists, supporting sophisticated behavior while providing full visibility into its internal operations. We are striving to build a toolkit that is agnostic with regard to data distribution method, operating system, programming language, and theory of dialogue. With enough users, we might have a shot at it.

Status

An initial version of the software has been developed, and is being hosted at SourceForge.

SOURCEFORGE.net For further information or to download the software, please see the [Project Summary Page](#) on SourceForge.