The CALO Meeting Assistant
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1. **Recording**
   - Instrumented laptops
   - Close-talking microphones
   - Digital pens
   - Personal web-cams
   - Client-server architecture

2. **Processing**
   - **Speech Recognition**
     - ICSI/SRI Decipher recognizer
     - Close-talking microphones
   - **Topic Segmentation & Extraction**
     - Griffiths, et al. generative model
     - Mixture of vectors of word probabilities
   - **Action Items**
     - Classify utterances
     - Classify action item sub-dialogues
     - Description
     - Timelines
     - Agenda

3. **Browsing & Interaction**

4. **Learning**
   - Create a human-annotated dataset
   - Train an initial "engineered" classifier
   - Generate result hypotheses for new meetings
   - Users provide implicit feedback through software interaction
   - Train an adapted classifier
   - Evaluate and determine whether to replace existing classifier

Learning takes place throughout the CALO system. The diagram above represents a human-in-the-loop learning framework used for action item detection. Unsupervised approaches are used for topic modeling and for speaker adaptation for ASR. Learning also happens through interaction with the CALO desktop system, which provides updated models for topics learned from emails, documents, and chats.

At the moment, interaction with the CALO Meeting Assistant is performed only after meetings, through the use of a meeting browser which presents summarized meeting information. However, we are exploring other forms of interaction, including real-time interfaces with low cognitive load, which can help the system to learn to perform better over time.

The CALO Meeting Assistant helps its owners by capturing and interpreting meeting conversations and activities, and retrieving relevant information. Information gleaned from a meeting can be incorporated in the respective owner's CALO knowledge stores to track commitments and remember references to projects, people, places, and dates. An archive of each meeting provides a searchable record for users, as well as real-time processing, experiments in human use, improved information extraction, and practical deployment.