



analyzing call databases and automatically identifying topics associated with an increased number of calls. Another area of interest is web search and text mining of documents for competitive intelligence or sales and marketing purposes. Recent applications include interactive dialog-based auto-response systems for the Web and text categorization for e-mail auto-routing and auto-response systems (see Knowledge Discovery and Data Mining on page 32).

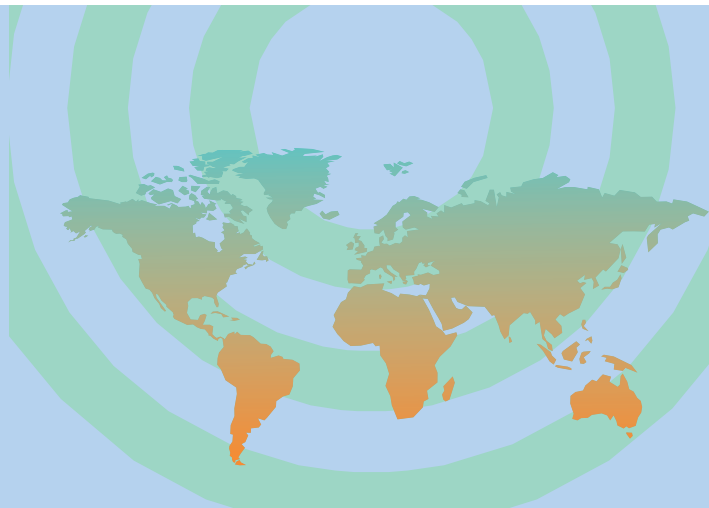
### Conversational Systems

Our research in this area spans the entire spectrum of conversational systems technologies, including multimodal dialog management, natural language generation, and statistical natural language understanding. Our vision is a flexible, free-flow conversational system that enables users to control an application by speaking naturally in their own words. We are exploring several techniques to construct both universal and application-specific dialog engines. Our emphasis is on scalable dialog systems capable of simultaneously handling many users, tasks, and input modalities (voice, keyboard, gesture, and mouse). We gauge the quality of our research efforts by prototyping systems for many applications – ranging from stock and mutual fund trading systems to phone banking, air travel reservations, and web-based shopping – in many languages, including English, French, German, Mandarin, and Spanish.

### Machine Translation

Machine translation (MT) technology is increasingly important due to the global use of the Internet for information exchange. Our MT research effort has three principal focuses: fully automatic machine translation algorithms, methods of assisting the manual translation process by source-side linguistic annotation, and corpus-based statistical machine translation algorithms specifically tuned for cross-lingual information retrieval.

Several of our translation systems take advantage of the slot grammar structure, which we have developed to produce more accurate machine translation. We are currently developing broad coverage slot grammar parsers in several European and Asian languages. Our English slot grammar parser is also the basis for grammar checking and controlled language checking, wherein the aim is to help writers produce clearer and more translatable text.



Soon researchers will bring us devices that can translate foreign languages as fast as you can speak.

Bald werden Forscher uns Geräte bringen die Fremdsprachen so schnell übersetzen können wie Sie sprechen können.