
**Abstract**

This paper presents a study of military applications of advanced speech processing technology that includes three major elements: (1) review and assessment of current efforts in military applications of speech technology; (2) identification of opportunities for future military applications of advanced speech technology; and (3) identification of problem areas where research in speech processing is needed to meet application requirements, and of current research thrusts that appear promising. The relationship of this study to previous assessments of military applications of speech technology is discussed and substantial recent progress is noted. Current efforts in military applications of speech technology that are highlighted include: (1) narrow-band (2400 b/s) and very-low-rate (50-1200 b/s) secure voice communication; (2) voice/data integration in computer networks; (3) speech recognition in fighter aircraft, military helicopters, battle management, and air traffic control training systems; and (4) noise and interference removal for human listeners. Opportunities for advanced applications are identified by means of descriptions of several generic systems that would be possible with advances in speech technology and in system integration. These generic systems include: (1) an integrated multirate voice/data communications terminal; (2) an interactive speech enhancement system; (3) a voice-controlled pilot's associate system; (4) advanced air traffic control training systems; (5) a battle management command and control support system with spoken natural language interface; and (6) a spoken language translation system. In identifying problem areas and research efforts to meet application requirements, it is observed that some of the most promising research involves the integration of speech algorithm techniques including speech coding, speech recognition, and speaker recognition.