Abstract: The fall symposium on Virtual Healthcare Interaction (VHI 09) was held in Arlington, Virginia from November 5-7, 2009. The goal of the symposium was to investigate the role of artificial intelligence in real or simulated interaction between healthcare providers and patients.

Interaction between healthcare providers and patients has a central role in patient satisfaction and successful health outcomes. Intelligent systems are beginning to play a role in this kind of interaction. They can assist in retrieval and summarization of relevant and trustworthy information and in tailoring information for the patient. Furthermore, they can provide virtual healthcare services such as reminding the patient to take his medicine, coaching a healthy lifestyle, and monitoring the patient’s health. On the healthcare provider’s side, they can provide virtual patients for training providers and caregivers to diagnose, care for, or more effectively communicate with clients.

The fall symposium on Virtual Healthcare Interaction (VHI 09) brought together health communication researchers and AI researchers and engineers from the subfields of simulation and serious games, spoken dialogue systems, natural language understanding and generation, and monitoring. Past AAAI symposia with related themes include the 2004 Fall Symposium on Dialogue Systems for Health Communication, the 2006 Spring Symposium on Argumentation for Consumers of Healthcare, and the 2008 Fall Symposium on AI in Eldercare.

The first major theme of presentations and discussion at VHI 09 was embodiment, i.e., intelligent systems with avatars representing patients and/or healthcare professionals. Systems described in the presentations support user input via approaches ranging from menus and pattern recognition to full natural language understanding of typewritten or spoken input. In addition, some of the systems use AI to control other aspects of the scenario such as simulation of the patient’s mental or physical state of health or external events affecting the patient. Discussion on this theme included factors contributing to fidelity and evaluating the relationship of fidelity to system effectiveness.

The second major theme was user-tailored natural language generation (NLG) of health information from the patient’s medical records. An invited talk by Allen Browne and Guy Divita of the National Library of Medicine focused on the Specialist lexicon and other tools developed at NLM for natural language processing applications that could be harnessed by NLG applications. In addition, presentations and discussion focused the considerable non-technological “practical” challenges to NLG research in healthcare such as access to and de-identification of patient records and involvement of patients in knowledge acquisition. The third major theme was patient monitoring, i.e., acquisition and use of symptom, activity, and location data, obtained automatically or by self-report. An invited talk by Marjorie Skubic highlighted monitoring technology in a senior living facility. Discussion ensued on integrating sensor data with natural language input.

At the end of the symposium the consensus of the participants was that it had been very useful to find out what others are doing in virtual healthcare interaction and that they would like to come to future symposia with a similar focus.

Nancy Green and Donia Scott served as cochairs of this symposium. The papers were published as AAAI Press Technical Report FS-09-07.

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