Supervision and Control of Multiple Semi-Autonomous Agents: Roles for Auditory and Speech Information in User Interfaces

Collin Green,
NASA Ames Research Center,
Human-Systems Integration Division, Human-Computer Interaction Group, USA

Abstract— **In the future, well-designed user interfaces will be needed for the effective supervision and control of multi-robot groups in survey, exploration, environmental sampling, search & rescue, construction, or maintenance tasks. What roles exist for auditory or spoken information in the context of this kind of human-robot interaction (HRI)? While there is substantial work on auditory and speech-centered interaction with single robots, those findings may not be relevant to the supervision and control of many semi-autonomous robots. Rather, the use of auditory and speech information in other domains: control systems for multiple unmanned aerial vehicles, real-time strategy video games, systems for tactical command or search and rescue, and air traffic management systems may provide insight to how visual information can best be complemented with aural information. This talk will explore Real-Time Strategy (RTS) video games as an analog for multiple-robot supervision and control systems. Specifically, some interesting uses of sound in RTS games will be discussed in the context of their potential application to multi-robot supervision and control.**