

## **Advanced human-machine decision and control interfaces**

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Abstract: In this talk I will focus on presenting intelligent systems that interface human operators with robotic platforms. The first part of the talk will focus on myoelectric control interfaces used for controlling robotic devices physically attached to the user's body. Power augmentation intelligent exoskeletons and prosthetic devices will be discussed, and efforts for controlling those devices via neural interfaces will be presented. These research efforts currently take place in the Human-Oriented Robotics and Control (HORC) Lab in ASU, directed by Dr. Artemiadis. Then, a novel control interface between humans and multi-agent systems will be presented. The human user will be in control of a swarm of Unmanned aerial vehicles (UAVs) and will be able to provide high-level commands to these agents. Moreover, the brain-machine interface between the swarm and the user will allow for research on swarm high-level information perception, leading to augmentation of decision capabilities for the state-of-the-art systems.