

Perceptual and Physical Augmentation

What superpower will you need?

Aptima's **Perceptual and Physical Augmentation** (PPA) capability provides human operators with enhanced capabilities to improve their perceptual and motor performance. PPA combines real-time sensor data and analytics about the user, their tasks, and state to deliver the right augmentation at the right time. Integrating with a range of user interfaces, from smart displays to wearables to robotic assistance, PPA supports users on the battlefield and in industry.

PPA improves human abilities through:

- **Enhanced Perception:** PPA amplifies the human's ability to perceive the world, particularly through advanced sensor networks paired with innovative user experiences, including:
 - Intelligent human sensory input (e.g., neurostimulation, vibrotactile and olfactory feedback) to create immersion and enhanced understanding in remote tele-present environments
 - 3D Spatial Audio technologies to create immersion and enhanced understanding in remote tele-present environments
 - Mixed Reality technologies to create powerfully extended/remote views and enhanced clarity of disparate information
- **Enhanced Motor Abilities:** PPA enhances the human's ability to enact physical influence on the world through:
 - "Somatic interfaces" – full brain and body intent recognition and integration with machines and AI teammates
 - Modeling of inference and intent to improve exoskeleton technology
 - Virtual Reality to provide telepresence as means by which to enhance distributed machine and robotic control

Sensor-enabled Perception

PPA leverages distributed sensor networks to acquire more/better information and more efficiently.

Mixed Reality Applications

PPA leverages mixed reality technologies to achieve job functions better and more efficiently.

Somatic-Computer Interfaces

PPA leverages real-time, full-body signals to communicate more effectively and efficiently with machines and synthetic entities.

For more information, please contact: Kevin Durkee | Tel. 937-490-8010 | kdurkee@aptima.com