worker-wearable worker-attachable

industrial robotics

Exoskeleton Technical Interchange Meeting
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Exoskeleton Technical Interchange Meeting

Crystal Gateway Marriott
Arlington, Virginia
June 28 and 29, 2017
Meeting Purpose

Engage the robotics community on **industrial** applications of **human-wearable** and **human-attachable** robotic devices to enable and **proliferate** use in the **workforce**

*Images Courtesy*
Agenda Highlights: Industry Perspectives
Agenda Highlights: Breakout Sessions

- Test Methods and Metrics
- Ergonomics
- Sizing and Fitting
- Risks and Regulation
Agenda Highlights: Topical Discussions

- Workplace Physical Demands and Musculoskeletal Injury Surveillance (NIOSH)
- Standards, Terminology Working Group, ASTM Standards Development (NIST)
- Update on Military Applications (NSRDEC)
- Update on Medical Applications (VA and FDA)
Wearable, prosthetic-like, exoskeletal, and other attachable robotic devices that serve as

- Personal protective equipment (PPE) and/or
- Performance augmentation and amplification devices (PAADs)
Robotic PPE

Protect workers from sustaining internal injuries due to forceful or over-exertion, fatigue, hyperextension, over-rotation, abrupt movements, repetitive motion or stress, repetitive or excessive vibration, awkward or prolonged postures, and possibly the latent effects of aging.
Traditional PPE

Current PPE protect workers from external hazards and exposures in the workplace.
Preventing Injuries

- Top three injuries at EM sites are

1) Contact with objects and equipment [■],
2) Falls [■] and,
3) Bodily reaction exertion [■]
Preventing Injuries

Cases with days away from work by event or exposure. *United States, 2013*
Performance Augmentation and Amplification Devices

Enable workers to more easily perform tasks that are physically stressful or demanding, mentally taxing, ergonomically challenging, or even beyond human capability.
EM is actively promoting the use of advanced robotic technologies as a key mission-enabler.
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