VERTEX | Human Performance

Use Cases

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Each day, small group breakout sessions will bring problem owners and potential problem solvers together for a live, intimate discussion on how to approach these complex Soldier challenges.

DECEMBER 07-08, 2022
AUSTIN, TEXAS

VERTEX

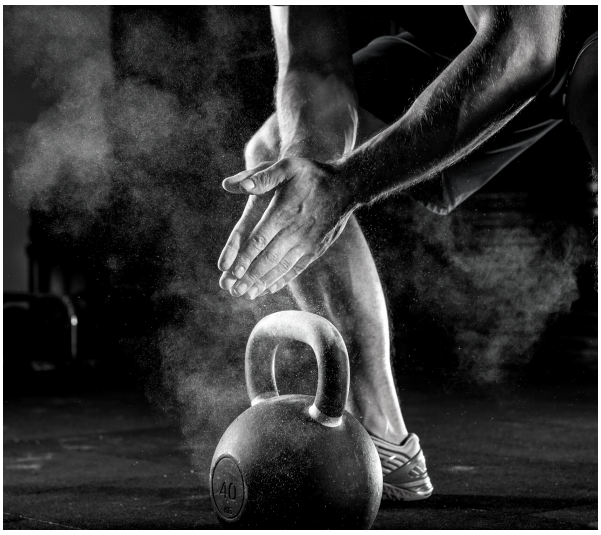
PERFORMANCE OPTIMIZATION
DECEMBER 07, 2022

Speeding Warfighter Recovery with New Technologies

How tech used by professional athletes could help Soldier recovery and readiness.

Before starting their daily duties, Soldiers conduct physical training followed by little down time for personal hygiene and breakfast. Throughout the day, they struggle to take care of themselves due to competing requirements. They may sacrifice meals, personal workouts, and healthy lifestyle decisions in favor of completing on-duty tasks.

In this breakout, we want to get smart on technologies and techniques used by athletes that can help Soldiers with little to no supervision to support recovery during on- and off-duty periods.



PERFORMANCE OPTIMIZATION
DECEMBER 07, 2022

Reducing Recovery Time Between Cognitively Demanding Activities

Exploring models and tech for cognitive and physical state analysis during close-combat scenarios.

Sustained performance of stressful and cognitively demanding tasks can deplete energy stores in the brain, alter the balance of key neurotransmitters, and cause motivational loss — all leading to cognitive fatigue that can reduce Soldier readiness. The Army is interested in the ability to (1) quantify the relationship between stress, cognitive fatigue, and physical and cognitive performance outcomes; (2) sense and predict imminent and emergent stress and cognitive fatigue states; and (3) accelerate recovery from the cognitive and physical degradations associated with these states.

During this session, we will dive into game-changing solutions that monitor cognitive and physical states and provide real-time/near-real time data interpretation and intervention.

PERFORMANCE OPTIMIZATION
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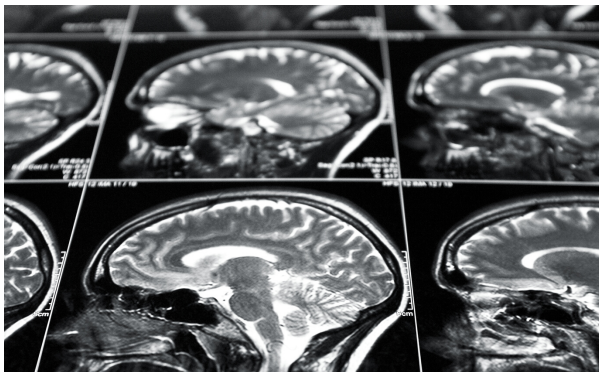
Fighting Chronic and Acute Occupational Stress

Developing hyper-resilient Soldiers through available tools and resources.



The Army needs hyper-resilient Soldiers who can self-regulate and persevere under stress, effectively reset and recover, and maintain optimal performance and mental health — while cultivating stronger social networks among teams. No easy task.

This breakout offers a chance to discuss the technologies that provide real-time monitoring of bio-measures for moment-to-moment insights into Soldier and team mental states. We will also explore technologies to monitor physiological activity in humans for improved performance. These include heart and respiratory rate, electrodermal activity, functional brain activity, and biomarkers of stress.

PERFORMANCE OPTIMIZATION
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Expand Cognitive Capacity to Fight and Win on the Battlefield

Managing neurocognitive function to improve cognitive performance in combat.

Mental readiness is critical for Soldiers. That's why the Army wants to invest technologies with mechanisms to improve cognitive load and attention — tools to improve a human's ability to think, feel, and act for long durations (and potentially under duress). Are there solutions that can lighten the cognitive load to increase short-term memory, improve focus, reduce the time it takes to master new tasks, and decrease retrieval time for key efforts? Probably.

In this discussion, we will explore how to increase mental readiness in the face of intense, rapidly changing and fatiguing conditions, helping Soldiers maintain consistent high performance in an evolving information age.

PERFORMANCE OPTIMIZATION
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Optimizing Sleep for Physical and Cognitive Performance on Demand

Exploring technologies that improve sleep health to maintain mental and physical wellness.

Mission requirements, jet lag, and shift work can limit the amount of sleep a Soldier is able to achieve — resulting in degraded performance. Since sleep is limited in an operational environment, the Army needs technologies that can enhance deep sleep and reduce the total time needed for restorative sleep.

During this discussion, we will dive into a range of non-pharmacological technologies that can help Soldiers sustain alertness in an operational environment when sleep is not possible due to mission requirements.

WEARABLES, TECH & DATA
DECEMBER 08, 2022

Manage What You Measure: Maximizing Wearable Tech for Military Use

Harnessing the power of wearable tech data to improve Soldier performance.

Data is king, and the Army wants to harness it to train, manage, and improve Soldier performance. Commercial industry uses wearables to collect physiological data in training and “game-time” environments. The Army could benefit from similar insights... but is often limited by unique data collection challenges.

In this breakout, we will explore how the military can maximize technologies in wearables to measure and impact cognitive performance, physiological stress, recovery, and optimized feedback in training.

WEARABLES, TECH & DATA
DECEMBER 08, 2022

Turning Data into Insight with Systems Integration and Architecture Development

Understanding Soldier human performance data to enhance health, fitness, and mission readiness.

Making sense of human performance data is no easy task — especially when integrating multiple, disparate streams of data ranging from physiological sensor measurements to Soldier injury history. This data is currently managed independently by multiple organizations, so getting a complete picture is a challenge. Tools to compile, standardize, integrate, and synthesis human performance data to gain insight are needed to understand Soldier health and fitness for duty.

Together, we will take stock of the systems, architecture, and processes required to gain insight and make sense of Soldier performance data.

WEARABLES, TECH & DATA
DECEMBER 08, 2022

Using Multimodal Info to Improve Human Performance

Advancing Soldier awareness with heads up/heads down displays

The military wants to use interactive, adaptive, and multimodal intelligent technologies to improve situational awareness during training, mission execution, and after-action reviews. One challenge lies in effectively transforming data into information that can be consumed, manipulated, and ultimately understood by the human user through intuitive interactions with these information displays.

During this session we'll explore immersive and multimodal display technologies, including those that leverage augmented and virtual reality, to improve situation awareness, reduce digital noise, and help Soldiers analyze and understand critical information.

WEARABLES, TECH & DATA
DECEMBER 08, 2022

Speed and Precision: The Winning Advantage

Technologies that increase critical reaction time.

Law enforcement officers, first responders, formula one race drivers, and e-sport professionals require a combination of cognitive and physical performance to act quickly and precisely to achieve the intended outcomes. In combat, Soldiers must sustain a high coupling of cognitive and physical domain to maintain complete motor control for events in the field, process decisions, and eliminate the threat.

In this breakout, we will explore technologies that can increase reaction time, accuracy, and precision in high demand situations like these.

WEARABLES, TECH & DATA
DECEMBER 08, 2022

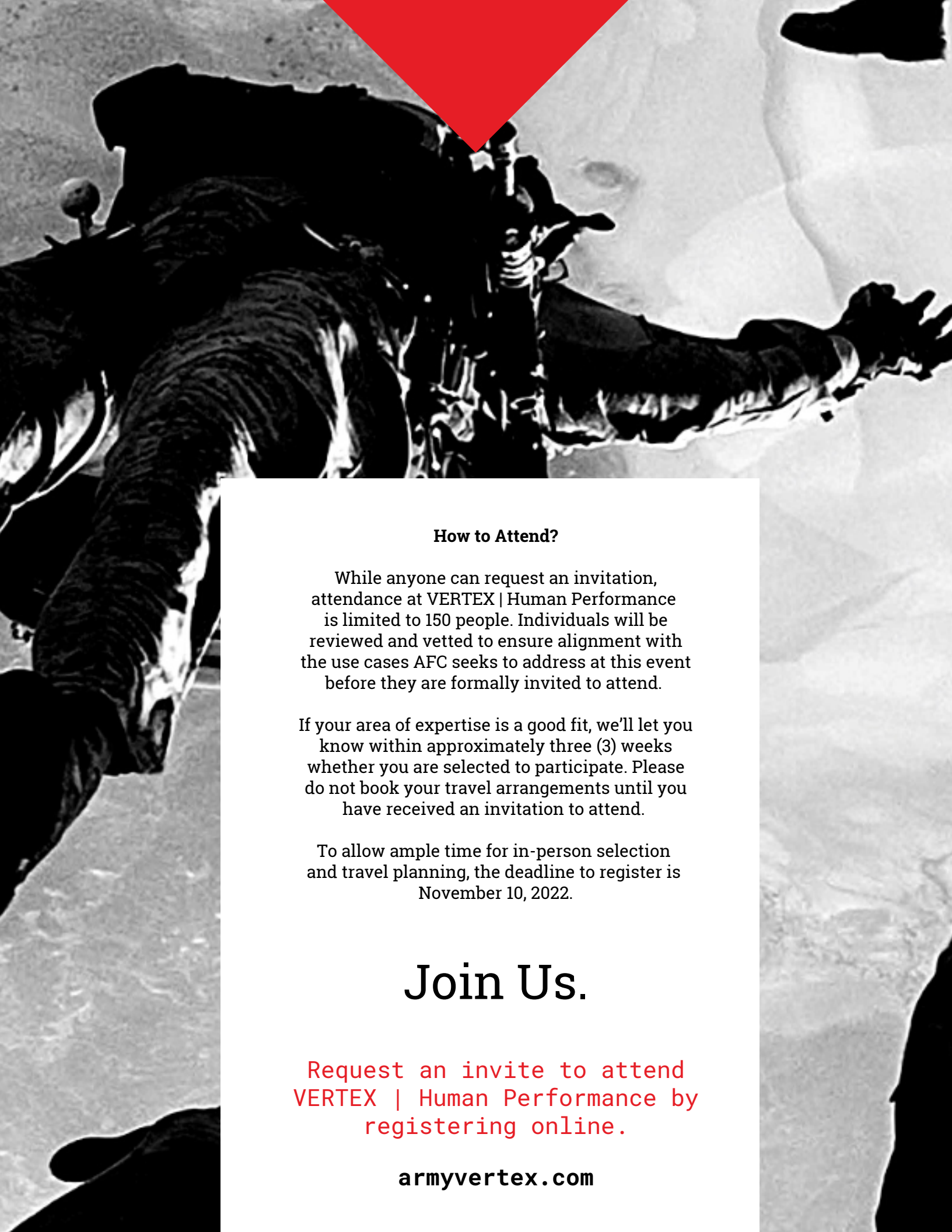
Solutions that Lead to Useful, Actionable Knowledge and Positive Behavior Change

Identifying learning tech that end-users actually want to adopt.

The Army needs a digital information and education platform to help Soldiers embrace human performance optimization. This platform must be accessible across a range of modalities — mobile phone, tablet, laptop, CAC enabled systems, with and without internet — and integrate via two-way APIs to things like wearables, athlete monitoring systems, and data visualization toolkits.

On top of that, it must also have a data centric backend to quantify utilization metrics and arm leaders with the tools they need to support technology adoption and encourage Soldiers with strategies to enhance performance.

As a group, we will examine potential solutions that are equally valuable for data collection — utility for leadership or research and development — as well as information delivery — utility for Soldiers.



How to Attend?

While anyone can request an invitation, attendance at VERTEX | Human Performance is limited to 150 people. Individuals will be reviewed and vetted to ensure alignment with the use cases AFC seeks to address at this event before they are formally invited to attend.

If your area of expertise is a good fit, we'll let you know within approximately three (3) weeks whether you are selected to participate. Please do not book your travel arrangements until you have received an invitation to attend.

To allow ample time for in-person selection and travel planning, the deadline to register is November 10, 2022.

Join Us.

Request an invite to attend VERTEX | Human Performance by registering online.

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