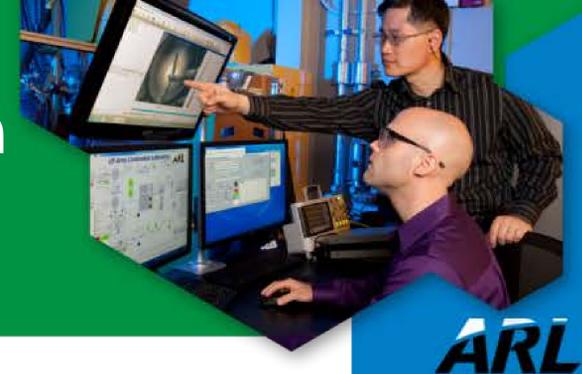


Omnipresent & Multi-aspect Human Assessment

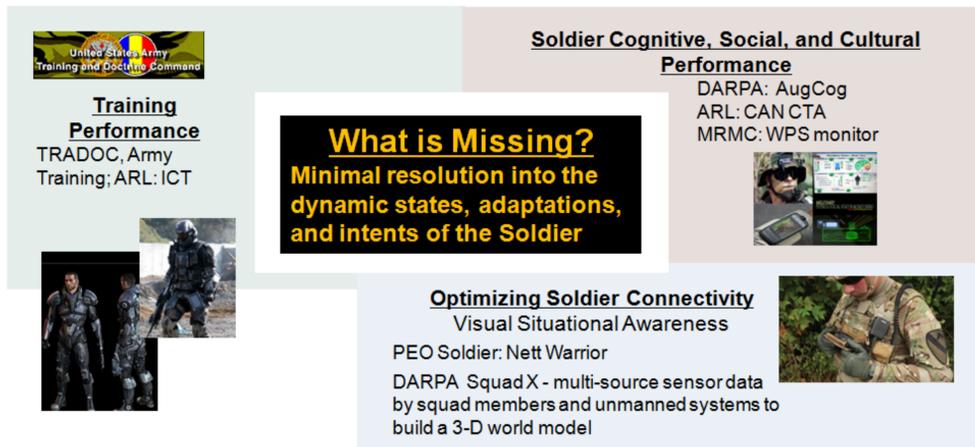


S&T Campaign: Human Sciences
Human Behavior

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Research Objective

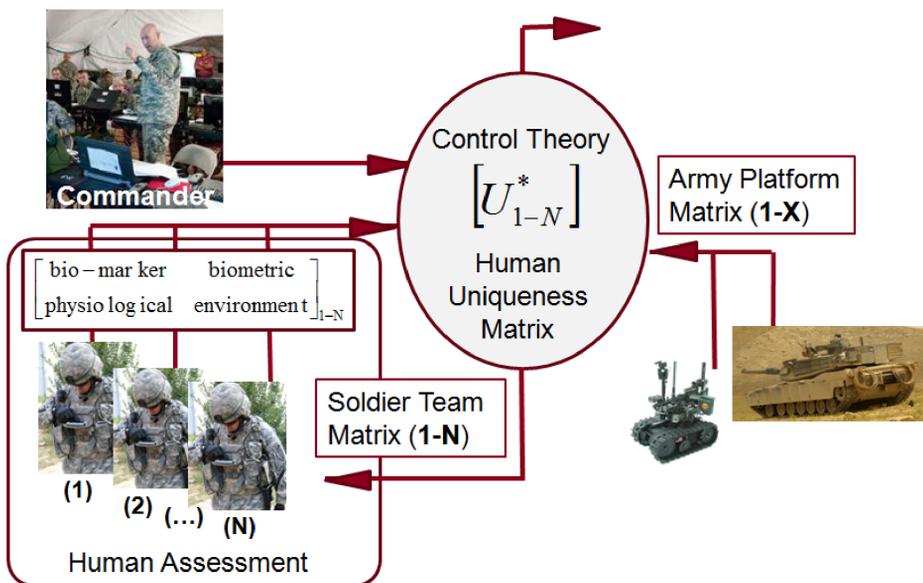
- Develop algorithms and techniques to interpret and predict Soldier state continuously in real-world environments
- Integrate multiple emerging technologies to advance omnipresent Soldier assessment for estimating and predicting natural, unique human states, adaptations, intents
- Develop approaches to integrate sensors, electronics and power on flexible 2D and 3D substrates



Many Soldier Performance Programs. Program objective will determine the Soldier state and optimize performance

Challenges

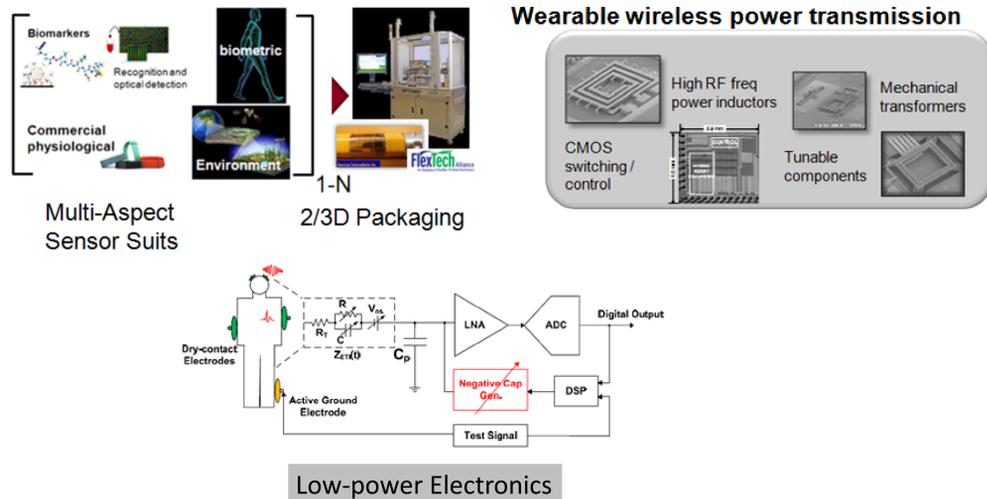
- Develop models for assessing individual Soldiers under real-world conditions and with degraded sensor inputs
- Develop soldier-born sensors to determine the State of the Soldier
- Develop power efficient electronics and body-worn power systems
- Integrate situational awareness data for complete model and data sets



Illustrations for the technical challenges addressed in Soldier Uniqueness Program

ARL Facilities and Capabilities Available to Support Collaborative Research

- Multi-aspect real-world measurement capabilities
 - Wearable, Un-tethered Operation
 - Flexible, Fully Customizable User Interface
 - Multiple modalities: EEG, EKG, EDA, respiration, blood pressure, motion, posture, and others
- Soldier assessment experimentation capabilities
- Low-power electronics design laboratories, power transmission system research labs
- Flexible Electronics for sensor research
- Program has ARL collaborations with experts from numerous disciplines



Complementary Expertise/ Facilities/ Capabilities Sought in Collaboration

- Seek Industries interested in collaborating on human performance monitoring with a specific interest in wearable and network based sensing.
- Industry collaborators to analyze and contribute to large human subject data with the objective to define models to optimize group-performance
- Soldier and teams to test and evaluate sensors and models