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Ohio Federal Research Network
Driving Innovation Through Strategic Partnerships

WELCOME!

Parallax ADVANCED RESEARCH + Ohio Federal Research Network
Driving Innovation Through Strategic Partnerships

Join us for

Ohio Federal Research Network (OFRN)

Opportunity Days

Free Virtual Event

November 15 | 9:00 - 10:45 AM (ET)

ohiofrn.org

The Ohio Federal Research Network (OFRN) is a program managed by Parallax Advanced Research Corporation in collaboration with The Ohio State University and funded by the Ohio Department of Higher Education.

Agenda

- **9:00 - 9:15 am** - OFRN Overview by Mark Bartman, Maj Gen (Ret.), VP for Advanced Development, Parallax Advanced Research
- **9:15 - 9:45 am** - Dr. Joseph Lyons, Senior Scientist for Human-Machine Teaming, 711 Human Performance Wing at Wright-Patterson AFB
- **9:45 - 10:15 am** - Dr. Eric Robinson, Research Psychologist, Naval Medical Research Unit Dayton (NAMRU-D)
- **10:15 - 10:30 am** - Dr. Mary Frame, Director of Cognitive Research, Parallax Advanced Research
- **10:30 - 10:40 am** - Opportunity Review, Steven Price, OFRN Associate
- **10:40 - 10:45 am** - Wrap-up

Introductions & Thank you

Parallax Team & Event Volunteers

- **Emcee:** Mark Bartman, Maj Gen (Ret.), VP for Advanced Development, Parallax Advanced Research

- **Parallax Team:**
  - Emma Zardo
  - Becky Mescher
  - Lauren Jones
  - Jess Pacheco
  - Sophia Cipriani

- **Event Speakers:**
  - Dr. Joseph Lyons, Senior Scientist for Human-Machine Teaming, 711 Human Performance Wing at Wright-Patterson AFB
  - Dr. Eric Robinson, Research Psychologist, Naval Medical Research Unit Dayton (NAMRU-D)
  - Dr. Mary Frame, Director of Cognitive Research, Parallax Advanced Research

- **Opportunity Review:**
  - Steven Price, OFRN Associate

- **Government partners:** AFRL, NAMRU-D, NASA-GRC, NASIC, Ohio National Guard

OFRN Construct

NASA Glenn Research Ctr (GRC) Priorities

Air Force Research Lab (AFRL) Priorities

National Air & Space Intelligence Ctr (NASIC) Priorities

State of Ohio

Industry Needs

PARALLAX & The Ohio State University

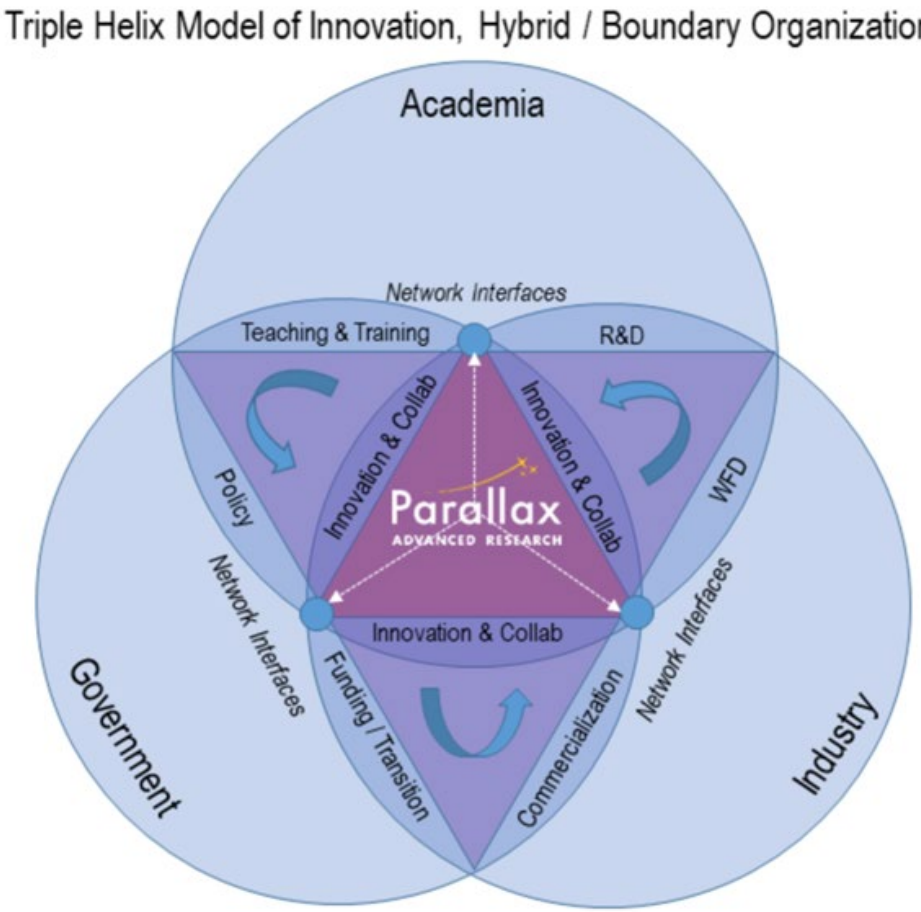
Naval Medical Research Unit (NAMRU) Priorities

Ohio National Guard Priorities

Executive Review Board

Technical Review Council

OFRN Goals



- Increase the amount of Federal Funding that flows to Ohio
- Support the types of Federal projects on which Ohio's federal partners are focused
- Increase the extent to which OFRN produces enhanced collaboration among institutions/industry
- Develop lasting and sustainable knowledge that allows academic institutions/industry to improve their ability to compete for federal resources over time

OFRN Program Impact – to date

21
Universities & colleges engaged

4+1
Government Partners

106
Business partners engaged

1,100+
Indirect jobs created

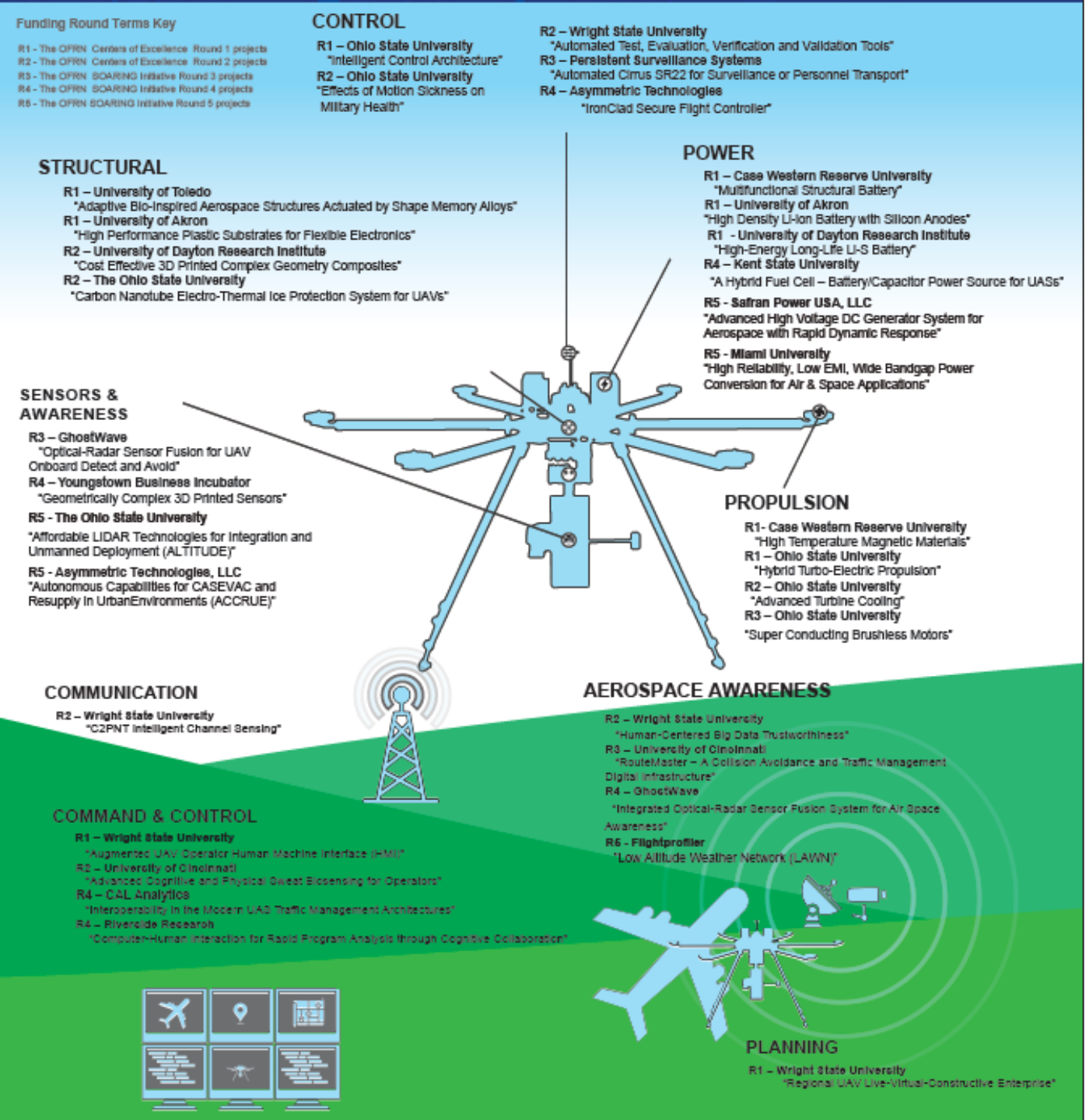
359
Direct jobs created

13
Spin out companies created

$61.8M
State of Ohio Investment - ODHE

$359+M
Follow-on Funding Awarded

$39M
Cost Share



OFRN: Rounds 1-5 Funded Projects

https://www.ohiofrn.org/ohio-federal-research-network-rd-projects

OFRN: Round 6 Projects

Proj #	Project Title	AOI	Lead	Team	Government Partner
602	Quantum Sensor System using Rydberg Atoms	Quantum Sensing Technologies	GhostWave Inc.	OSU, UDRI, Converge Technologies, Infleqtion	AFRL
609	Structural Materials Joining in Space	Commercial Space in Low Earth Orbit	The Ohio State University	UD, Central State Univ., Agile Ultrasonics LCC, Lincoln Electric, Nanoracks	AFRL, NASA
619	High Bandwidth Light Weight Modular GaN Based Utility Interactive DC Emulator	High Power Energy Conversion	University of Akron	CWRU, PC Krause & Associates	AFRL
624	Ocular and Physio-Temporal Indicators of Cognitive State (OPTICS)	Human Performance	Kairos Research	WSU, Sinclair, The Entrepreneurs' Center	AFRL, NAMRU-D
625	Gradient Alloy Processing in Laser Powder Bed Fusion for Hypersonic Applications	Hypersonics	Arctos Technology Solutions	OU, UT, GoHypersonic, Hyphen Innovations	NASA
628	A Machine Learning Framework for Digital Engineering of Hypersonic Vehicles with Quantified Prediction Uncertainty (Hypersonic ML FW)	Digital Engineering Tools	CFD Research Corporation	AFIT, WSU	AFRL

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ddc | dayton development coalition

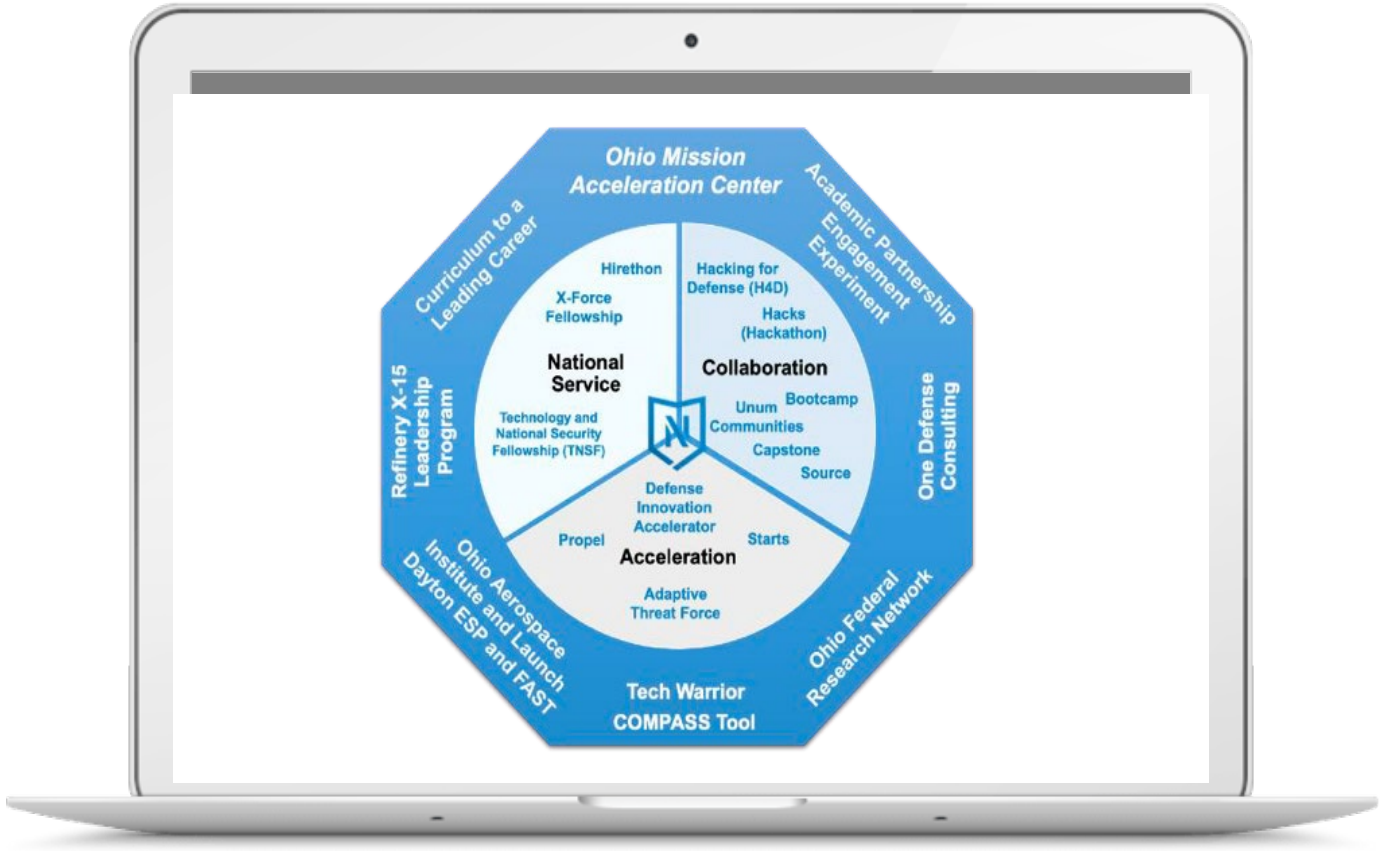
OneDefense

JobsOhio

Great Lakes Mission Acceleration Center (MAC)

Defense Innovation Unit (DIU) OnRamp Hub: Ohio

What the Great Lakes MAC will do:



- ✓ **Front Door** to defense innovation for DoD to Ohio Businesses, academia, state organizations, and non-traditional innovators
- ✓ Parallax Research will coordinate OSD/DIU programs across the State of Ohio to ensure success
- ✓ Locations across Ohio will provide physical and digital space for entrepreneurs to meet, collaborate and innovate
- ✓ MAC will solve DoD problems and transition technologies

The MAC Network in Ohio

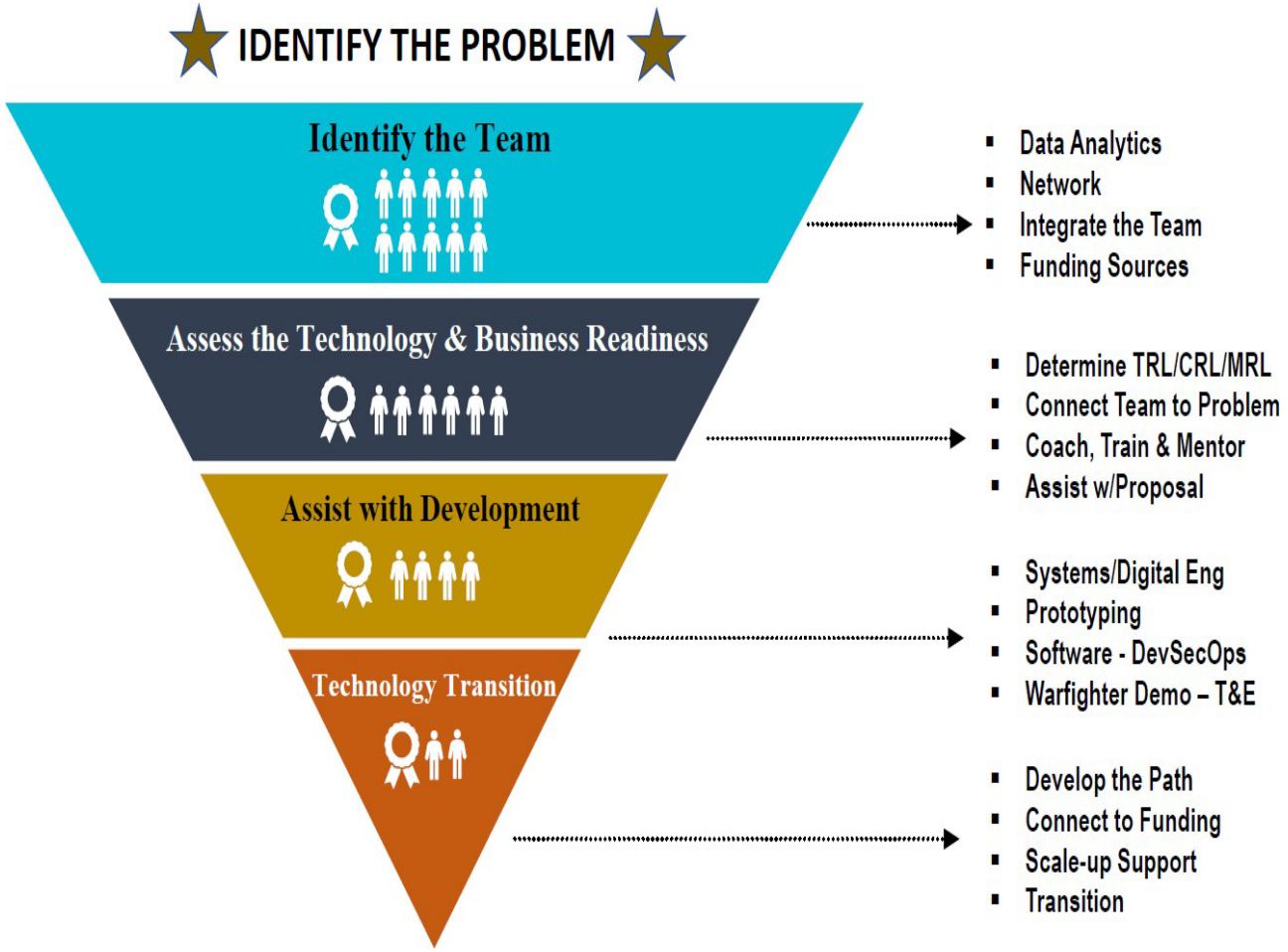
A network of networks to bring innovation to DoD and solve key problems to create an unfair fight

The MAC Team are Connectors to:

- Investors at every capital stage (angel, seed, growth, Federal and State R&D funding)
- Prospective customers including major Fortune 100 corporations
- Academic and State Innovation Ecosystems (i.e., OFRN) including the Ohio Research Universities
- S/W & H/W Prototyping
- Manufacturing Expertise and Capabilities
- Test and Evaluation Locations
- Digital Engineering Resources

Technology Positioning

The Great Lakes MAC leverages technology scouting to find the most advanced and promising technologies to meet the DOD's operational demands



The MAC Network – What Makes Us Unique

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- ✓ Established existing ecosystems for entrepreneurs and small businesses that have experience working with federal agencies'
  - Great Lakes MAC (OH)
  - Great Plaines MAC (KS)
  - Southwest MAC (AZ)
  - Northwest MAC (WA)
  - IndoPacific MAC (HI)
- ✓ Robust networks of angel investors and venture capital
- ✓ Extensive State funding to help with startups (ESP, TVSF)
- ✓ Follows a systems engineering approach to reduce risk and speed transition
  - Ecosystems for prototyping and manufacturing (WBI, CDME, MEPs etc)
  - Test locations – AAM range in Springfield, National Guard locations, Tech Warrior experience
  - Airworthiness support from AFLCMC
  - Software Factory – Hanger 18 – DevSecOps, Cloud, AoA

AFRL

DECISION SUPERIORITY FROM HUMAN-MACHINE TEAMS (HMT)

JOSEPH LYONS, PHD, ST

711TH HUMAN PERFORMANCE WING | 15 NOV 2023

Outline

- Strategic Background
- Using HMT to Achieve Decision Superiority
- The Role of Human State/team Data in HMT
- Some Examples of HMTs
- Science in HMT

Human-Machine Teams are a strategic Imperative

- Trusted AI & Autonomy "…imperative to dominate future conflicts" (USD R&E Technology Vision, Feb 2022) – **connected to DoD needs**
- "By leading in military ethics and AI safety, we reflect our Nation's values" (SECAF memo 2021) – **increased emphasis on AI ethics**

National Academy of Science Report on Human-Autonomy Teaming, 2021

- Notes the criticality of trust in autonomy, transparency, human-autonomy teaming models and understanding

Decision Superiority is a Core Competency of the 711th HPW

- **Faster**
- **More accurate**
- **More resilient (adapt, recover, repel uncertainty)**
- **Greater breadth of information acquisition/analysis**
- **Better collaboration among Airmen & Guardians – Joint All-Domain**

Decision Superiority to outpace & outmatch the OODA loop of our adversaries

Human-Machine Teaming is an Emergent Research Topic

HMT is a growing topic (Chen & Barnes, 2014; Chiou et al., 2021; Demir et al., 2021; Endsley et al., 2021; Flathmann et al., 2023; Hauptman et al., 2023; Lyons et al., 2021; McNeese et al., 2021; 2023; Musick et al., 2021; O'Neil et al., 2022; 2023)

What is a HMT?

- A set of humans and autonomous agents that interact to accomplish a common task/goal using teamwork behaviors and communications (McNeese et al., 2018)
- Key "potential" assumptions:
  - Capable of assuming a role as a team member
  - Some degree of self-governance/adaptability
  - Team-focused behavior, goals, & communication
  - Shared mental models, synchrony, shared intent

Using HMT to Achieve Decision Superiority

Human-Centered Approach

Information Acquisition

Data Fusion/Filtering/Visualizations
Information retrieval – Retrieval Augmented Generation

Decision Support

Course of Action development, selection, management
- Multi-Domain C2, LLMs

Task Execution

Machine-augmented actions
- Based on delegated, bounded authority

Responsible Use of AI

Transparency & trust
- Grounded in operator values, preferences, constraints

Unrivaled HMT

Optimized CCA

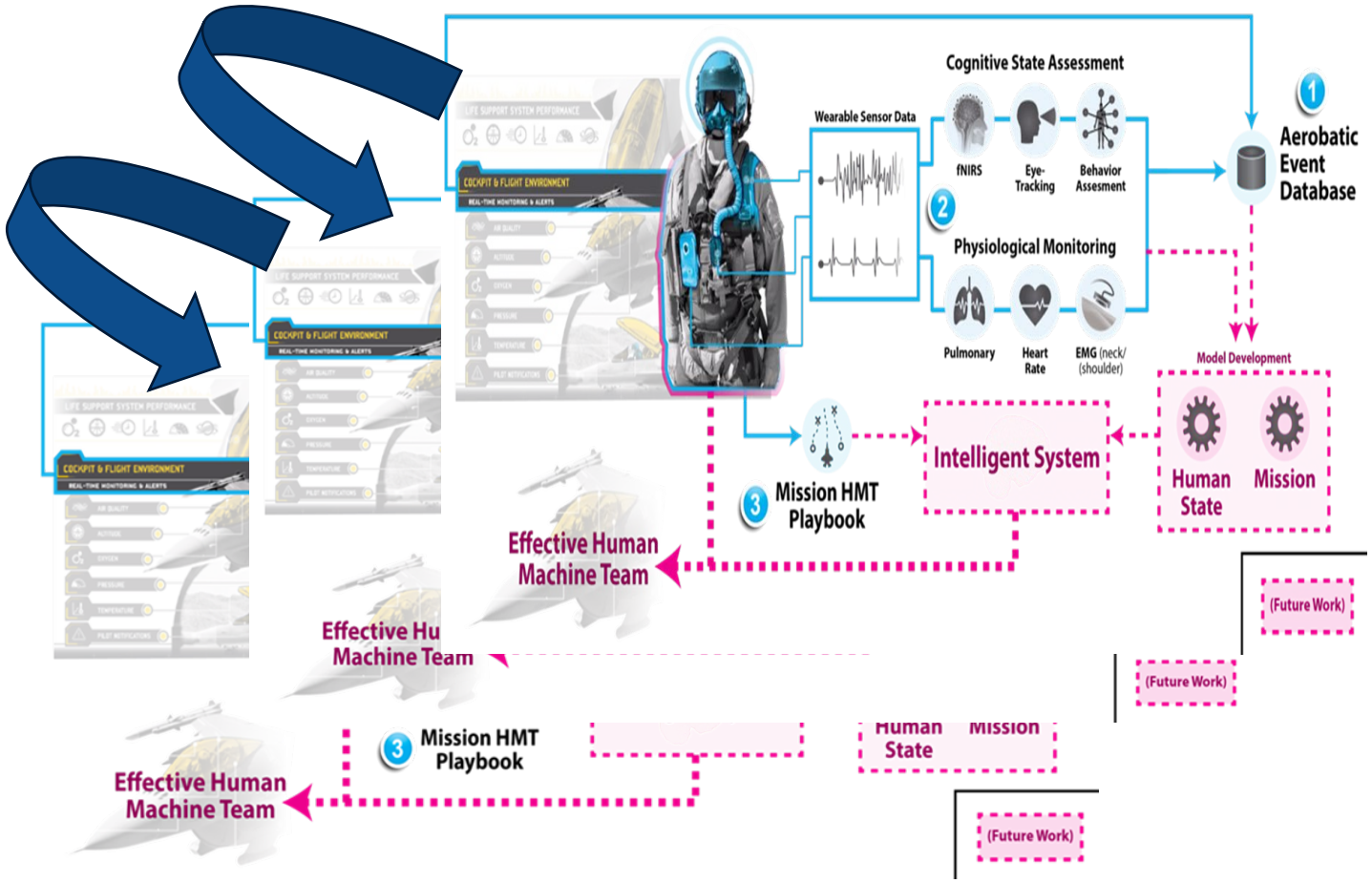
Maximized Operational Performance by Multi-capable Airmen and Guardians

Peak Cognitive Effectiveness

Unbeatable C2

Human State/Team Data to Feed Effective HMTs

- Team Performance Dynamics & Metrics
- Predictive Models of Cognition & Performance
- Bidirectional Transparency
- Brain-Computer Interfaces
- Communication Interfaces
- Intelligent Task Management



AI/Autonomy in the Cockpit

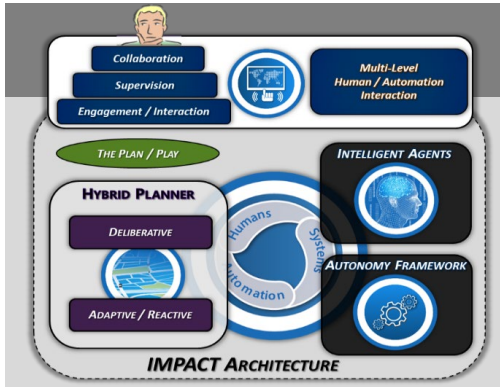
- DARPA Air Combat Evolution (ACE)
  - AI to augment dogfighting capabilities
  - Large trust focus

- Autonomous Air Combat Operations (AACO)
  - AI to support combat operations
  - Large safety assurance focus

- Collaborative Combat Aircraft (CCA)
  - Autonomy to support Collaborative Combat Aircraft
  - Trust & Operator Interface-focus

INTELLIGENT MULTI-UXV PLANNER W/ADAPTIVE COLLABORATIVE CONTROL TECHNOLOGIES

IMPACT



AI Enabled Battle Management Command & Control (C2)

Scenario: Base Security Capability Focus: Force Multiplication

Enables distributed teaming of operator(s) to manage multiple unmanned vehicles (air, ground, sea) maximizing Human-Autonomy Teaming Agility via:

- Flexible Play Calling
- Cooperative Control Algorithms
- Intelligent Decision-Aids
- Intuitive Human-Machine Interfaces

MANUAL

Operator develops COAs & planning – hands on interactions

PLAY CALLING

Operator intent translated to actionable COAs

AUTO-INITIATED PLAYS

System authorized to act on behalf of operator based on pre-existing contract

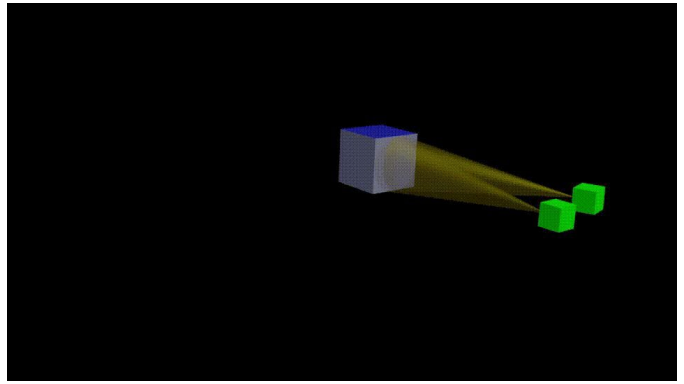
Low — *Level of Autonomy* — *High*

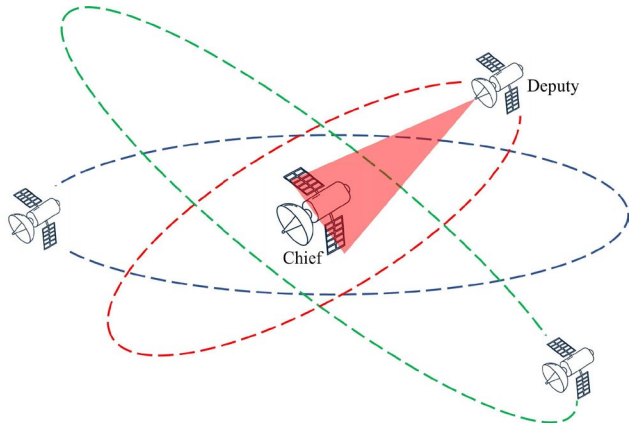
Safe Trusted Autonomy for Responsible Satellites (STARS)

- Objective: Quickly react, plan, and decide on appropriate courses of action for inspection tasking in proximity operations in support of In-space Servicing, Assembly, and Manufacturing (ISAM)

General Technical Objectives (GTOs):

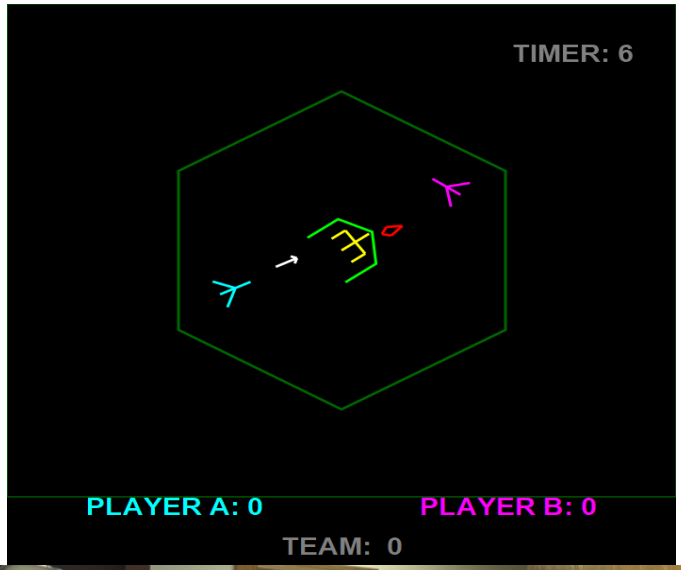
- GTO1. Develop flexible human-autonomy interfaces that provide directability and transparency for course of action visualization, comparison, and selection
- GTO2. Develop reinforcement learning-based neural network multi-agent controllers that incorporate mission and task-specific operator preferences in identification of courses of action
- GTO3. Develop run time assurance approaches that mitigate hazards and allow the autonomy to stay on mission for longer in the face of unexplored system parameters, scenarios, and/or poorly modeled aspects of the system

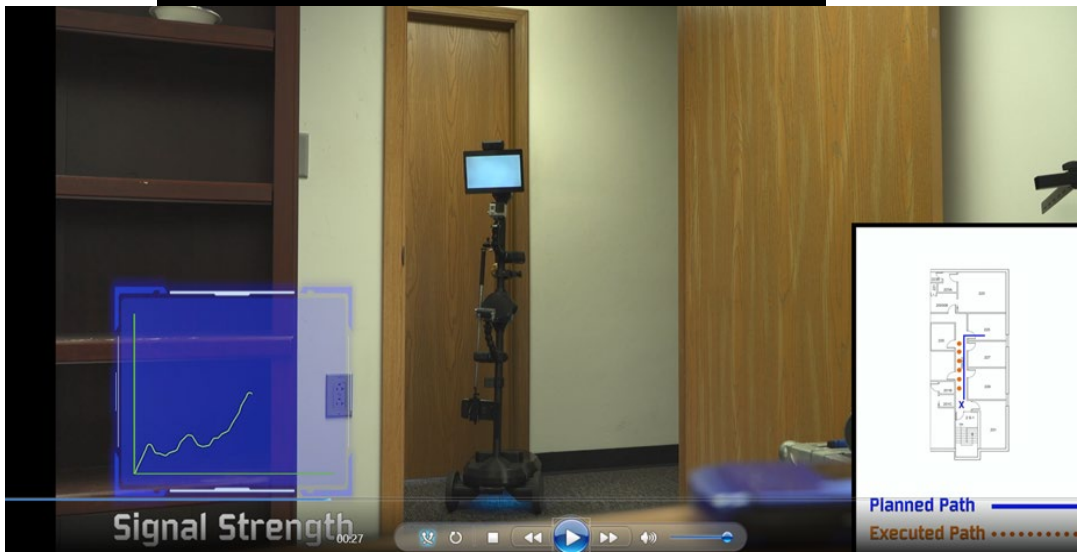




Human-AI/Robot Teaming Science

- Trust & Influence Portfolio (AFOSR)
  - Basic science in HMT
  - Centers of Excellence
    - Trust in HMT (CMU)
    - Neuroscience of Decision Making (Columbia)
- AI transparency
  - Elegant failures (Alarcon & Willis, 2023)
  - AI intent (Capiola et al., 2023)
- Robot Transparency/Explanation
  - Explanation for trust repair (Lyons et al., 2023)
- Co-learning with machines
  - How can we foster robust mental models of machine partners?
  - Intent-based scaffolding
- HAT Models/AI ethics
  - AATs Model (Wynne & Lyons, 2018)
  - AI ethics WS in partnership with AFOSR (2023)





Questions?

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(711HPW/RH)
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CHALLENGES ASSOCIATED WITH PHYSIOLOGICALLY-DRIVEN INTERVENTIONS IN THE FLIGHT ENVIRONMENT

F. Eric Robinson, PhD
Naval Medical Research Unit Dayton/Expeditionary Medicine & Biomedical Sciences

Legal Statements

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Legal Statements

Source of Support

Referenced studies were funded by/supported by PMA-273.

Human Research/Institutional Review Board (IRB)

The referenced studies were approved by the NAMRU-D or applicable Institutional Review Board in compliance with all applicable federal regulations governing the protection of human subjects.

Background

- Human-Machine Teaming (HMT) is often framed in terms of collaboration on tasks that emphasize cognition:
  - Monitoring
  - Problem solving
  - Decision making
- Many environments associated with the DoD are cognitively AND physiologically challenging
  - Altitude
  - Temperature
  - Sleep deprivation
  - Physical fatigue
  - Exposure to substances

Image credits: Top – Whitney Hughes, dvidshub.net; Bottom – Kate Kramer, dvidshub.net

Background

- Tactical aviation presents many challenges:
  - Hypoxia
  - Work of breathing
  - Temperature
  - Hydration
  - Fatigue
  - Acceleration/G
  - Workload

Image credit: Charles Gaddis IV, dvidshub.net

Background

- There are no systems in place to warn the pilot when they are physiologically degraded.
- Physiologic events have caused serious disruptions in training and readiness.

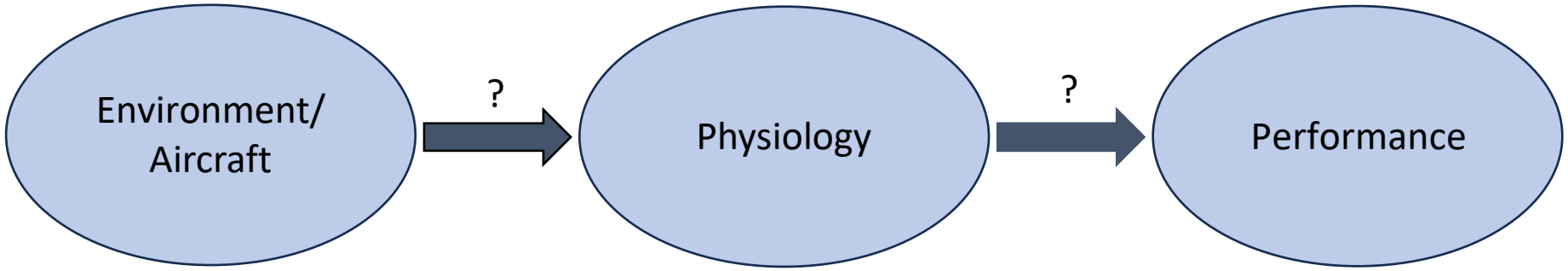
Image credits: F-18 – Charles Gaddis IV; F-22 – Jacob Thompson; T-45 – Courtesy Photo; all from dvidshub.net

Research Gap

- The DoD is actively developing sensors to monitor pilot physiology in the cockpit.
- How do we utilize available data to reliably warn the pilot when they might be at risk?

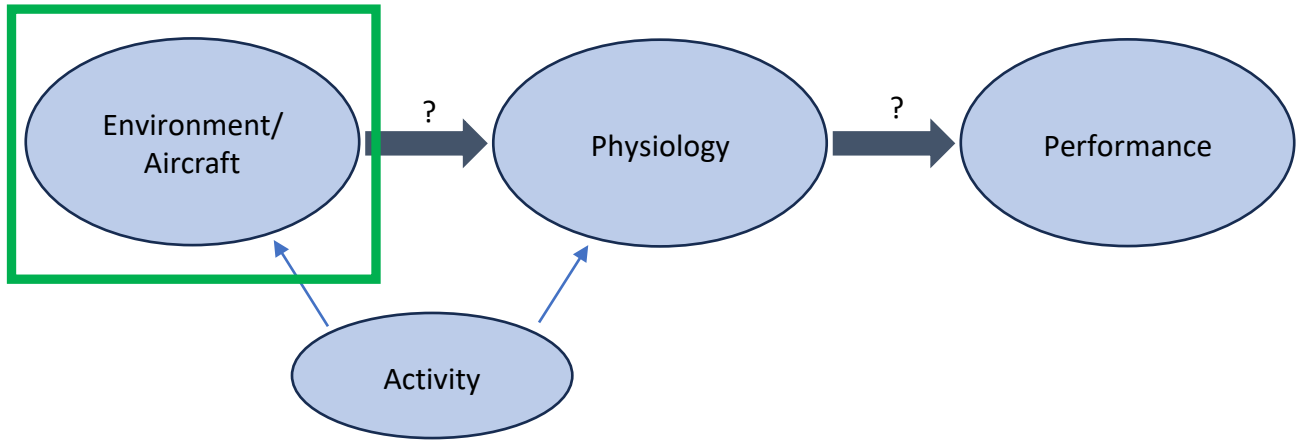
Research Gap

- Automated alerts or supplemental systems require activation thresholds that do not lead to unnecessary mission impact.
- It is difficult to establish consistent links between the environment, physiological response, and performance effects.



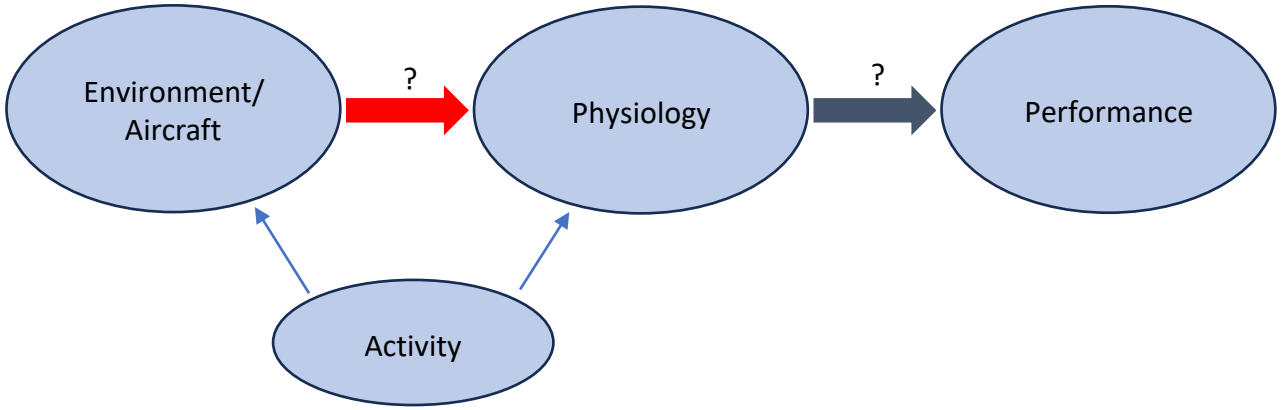
Issue 1: Environmental Context

- We can’t interpret physiological data without knowing about the environment.
- Different flight tasks can alter both the flight environment and aircrew physiology.



Issue 2: Individual Differences

- Individuals show wide variability in their response to various respiratory challenges.
  - Inter-individual variability
  - Intra-individual variability?



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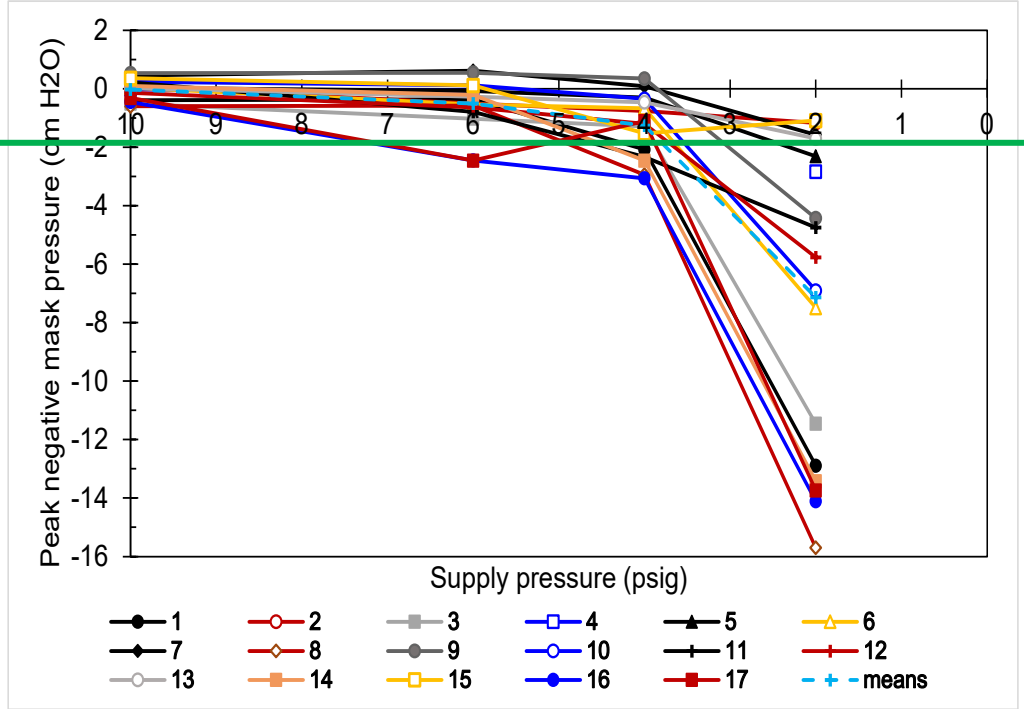
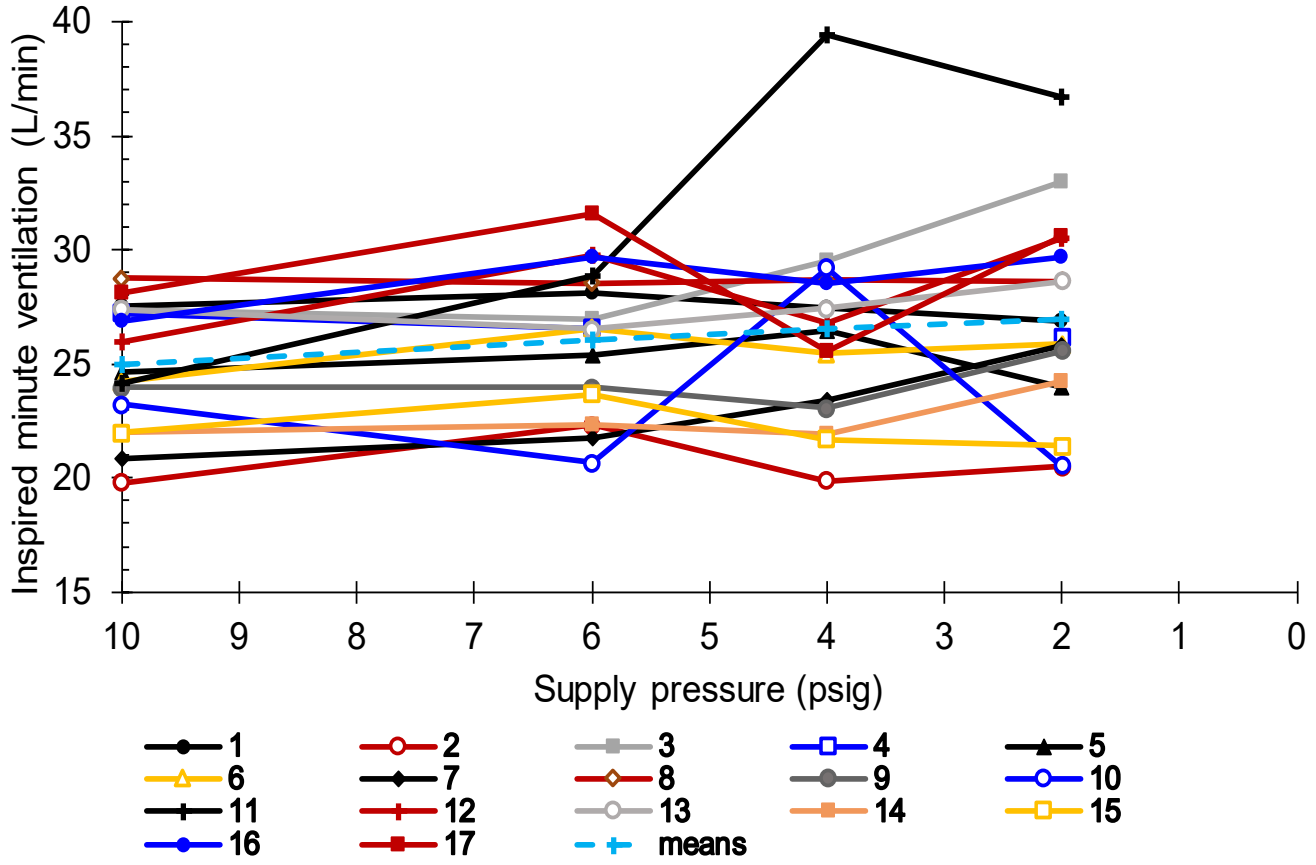


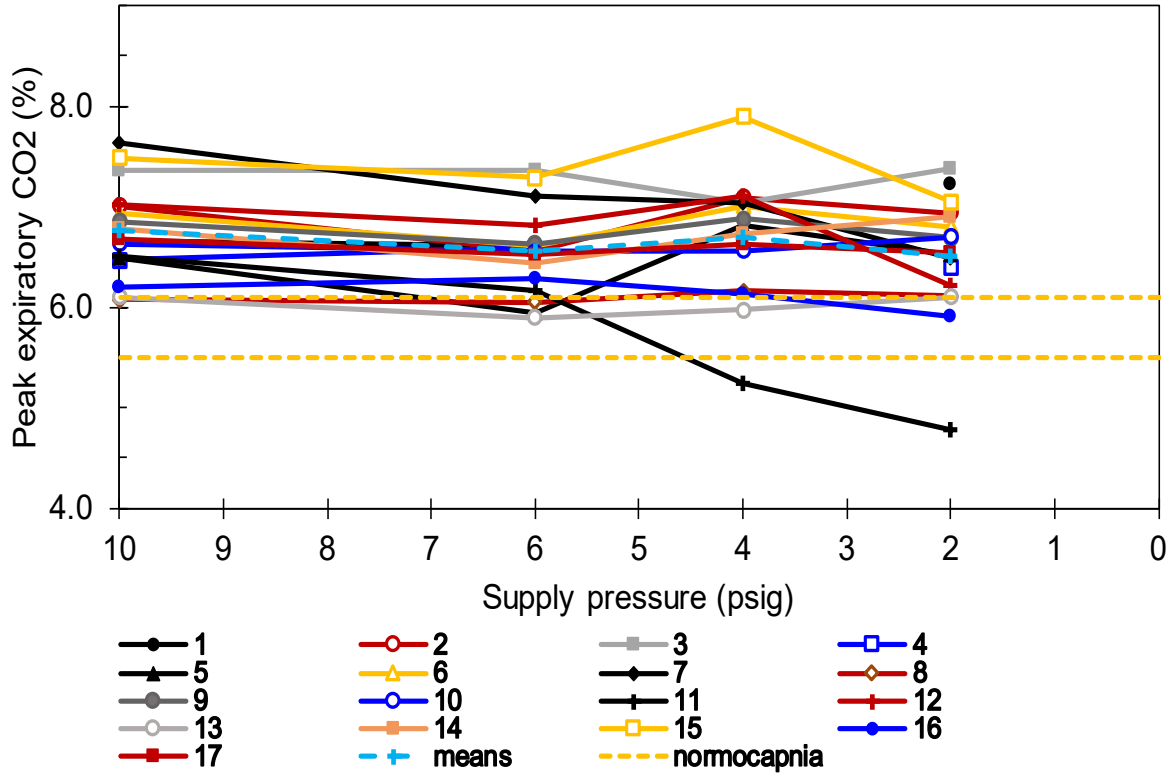
Issue 2: Individual Differences

- Minute ventilation
  - No changes across inlet pressure in the data set as a whole
  - Three subjects increased minute ventilation by 19% or more from 6 psig to 2 psig
  - One participant increased minute ventilation by 41% between 6 psig and 4 psig
  - One participant decreased minute ventilation by 10% between 6 psig and 2 psig



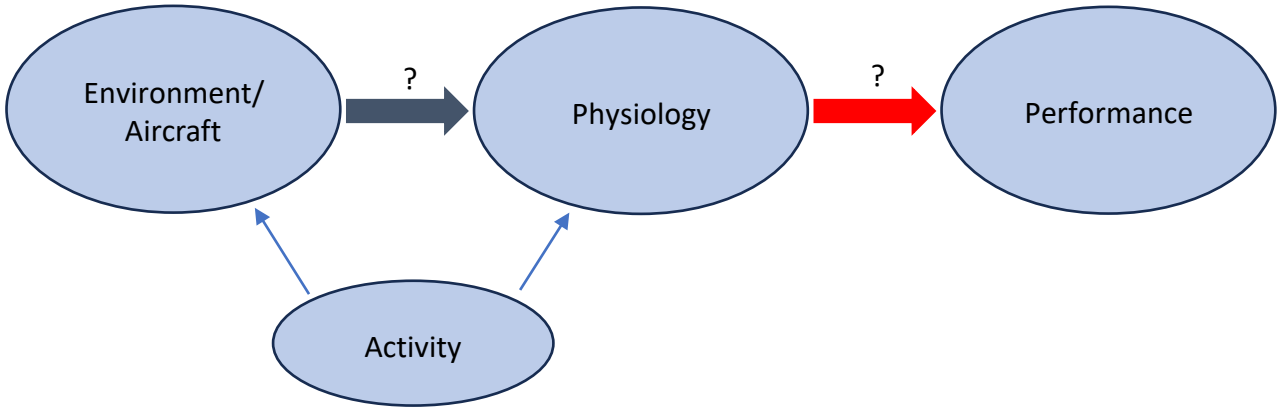
Issue 2: Individual Differences

- End-tidal CO_2
  - No changes across inlet pressure in the data set as a whole
  - Compared to 6 psig, $F_{ET}CO_2$ for subject 11 decreased by 15% and 22% at 4 psig and 2 psig, respectively
  - Compared to 6 psig, $F_{ET}CO_2$ for subject 15 increased by 8.4% at 4 psig



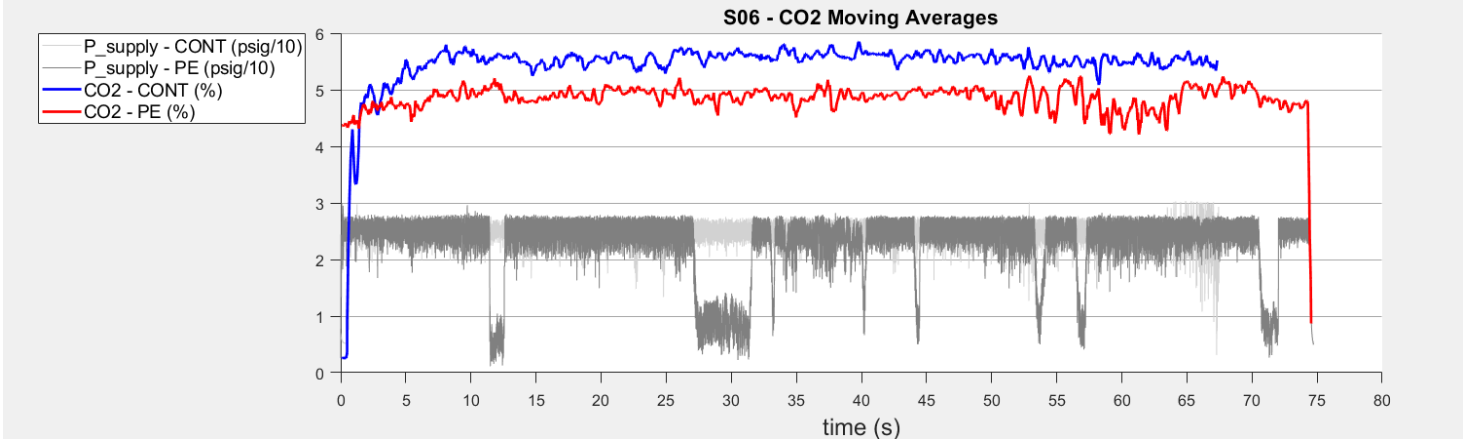
Issue 3: Performance

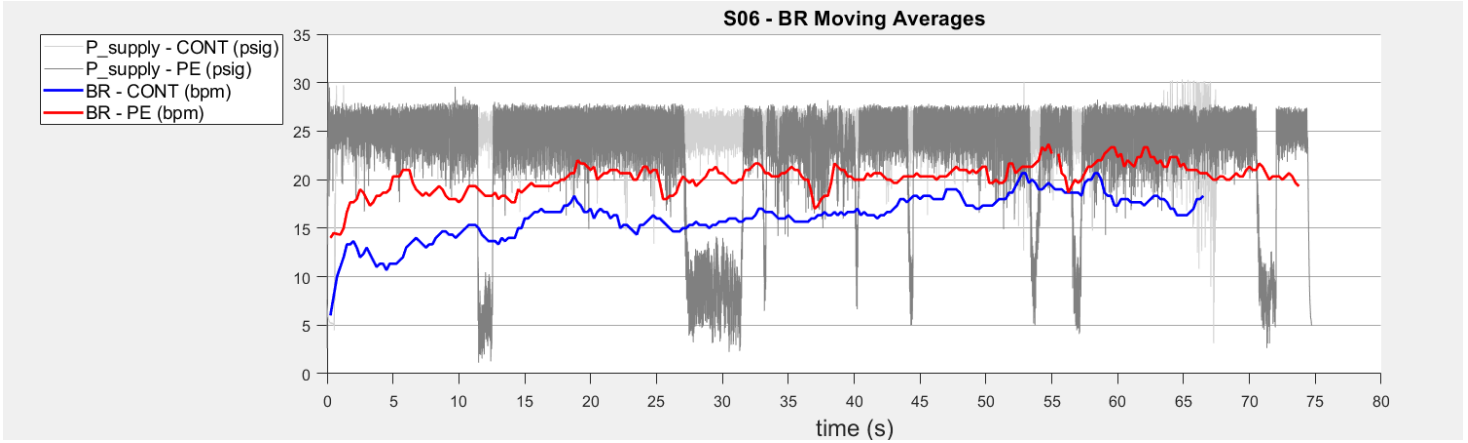
- We do not see consistent links between physiology, subjective symptoms, and task performance.



Issue 3: Performance

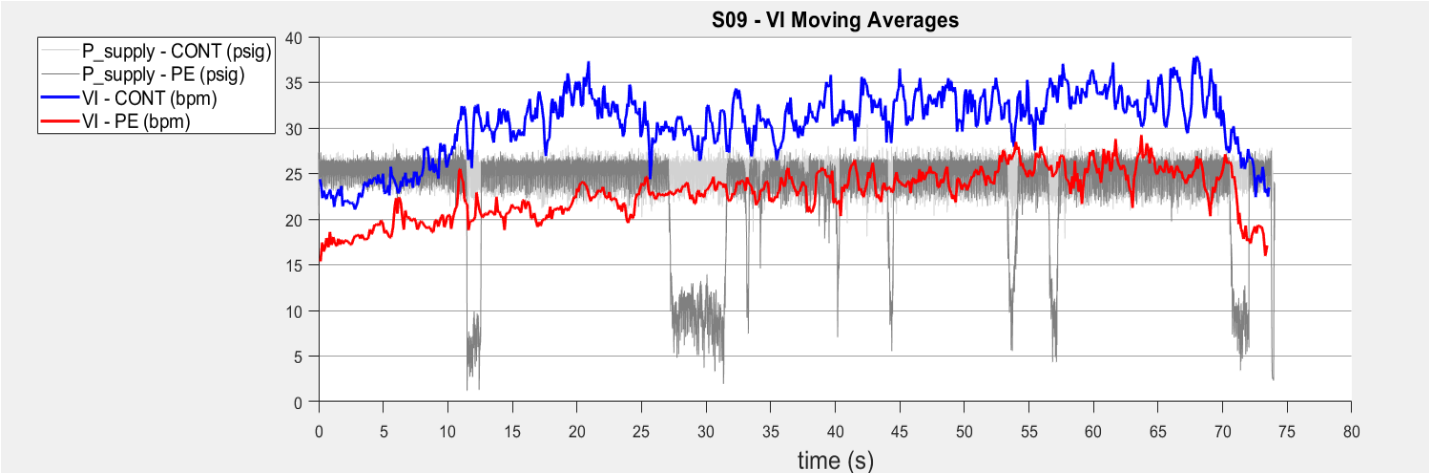
- Subject 6:
  - Decreased end-tidal CO_2
  - Increased breath rate
  - Elevated work of breathing
- Difficulty breathing, shortness of breath, air hunger, and gas flow in the mask were rated as worse in the <u>control</u> condition.
- Psychomotor vigilance not affected

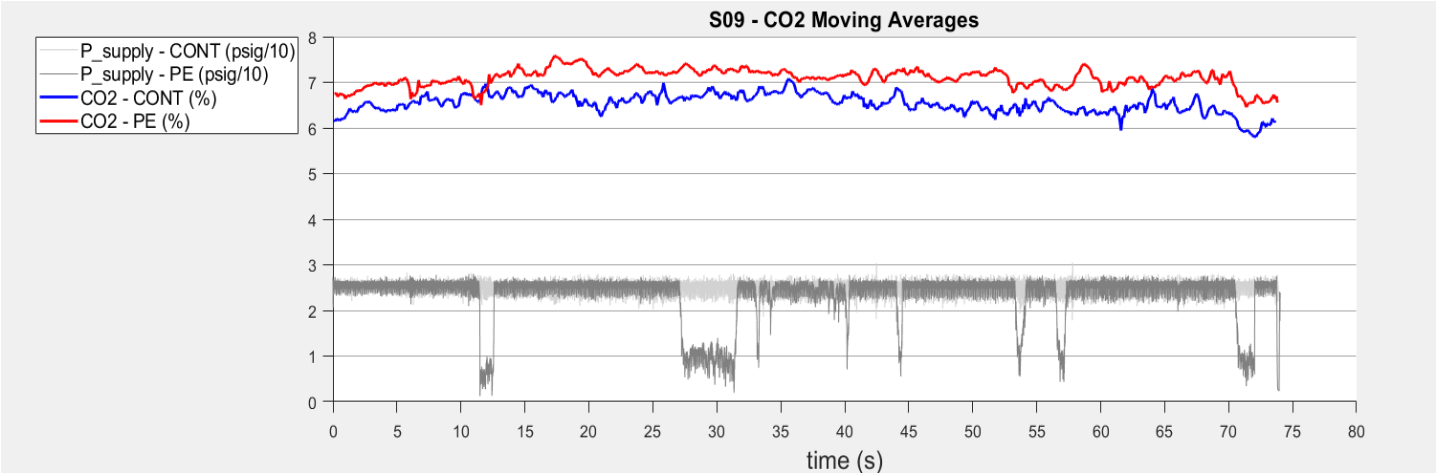




Issue 3: Performance

- Subject 9:
  - Reduced breathing frequency
  - Reduced minute volume
  - Elevated end-tidal CO_2
- No reported breathing issues in either condition.
- Large performance decrease in the experimental condition.





Moving Forward

- How do we predict an individual's risk of impairment from aircraft and physiology data?
- How do we validate the systems we develop given limited data sets?

Questions?

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Human-Machine Teaming

Dr. Mary Frame, Parallax
Advanced Research

Human-Machine Teaming at Parallax

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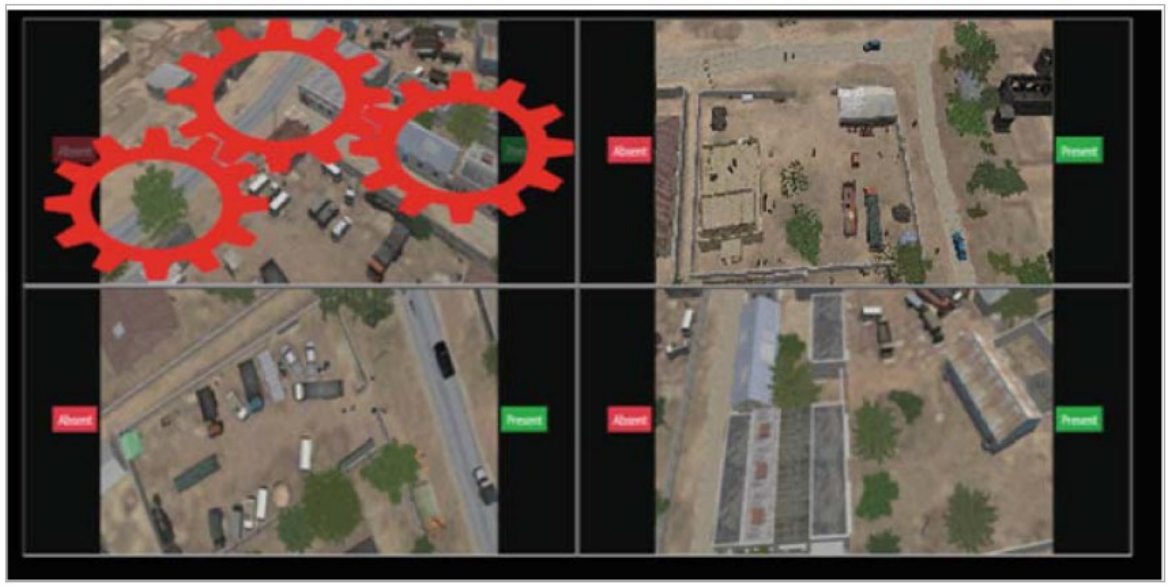
Collaborations with AFRL

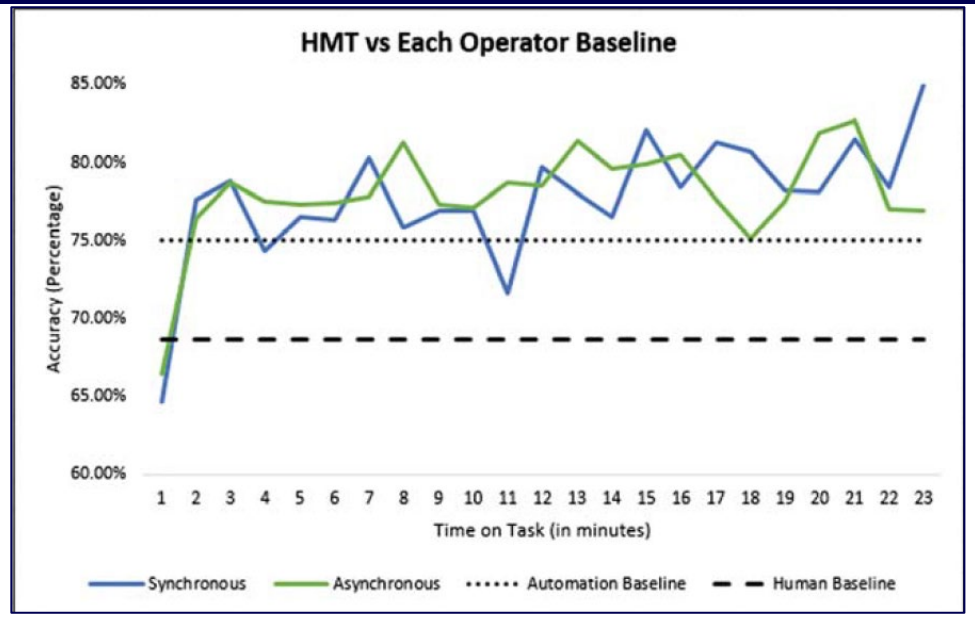
There are many important components to ensuring effective Human-Machine Teaming

- Shared goals and mental models between all teammates
- Keeping all teammates “in the loop” while allowing specialization of tasking to increase efficiency
- Trust between teammates to ensure that there’s not excessive reliance on automation, nor excessive monitoring of automated teammates
- Adequate transparency into the processes used by automated teammates to allow for human understanding, without being excessive in description
- Recognizing changing conditions in human(s) or machine(s) and injecting appropriate interventions – e.g., conditions of performance decrement, increased cognitive load, boredom
- Balancing workload appropriately and changing tasks dynamically
- Leaving final decision-making authority to the human operator
- Measures of effectiveness

Autonomous Manager

The goal of this study was to develop an automated tool that could monitor multiple agents' performance (human or automated) on multiple tasks and reallocate these tasks dynamically as a function of each team member's performance and the human agent's workload. In our initial study, we utilized four independent image classification tasks. To vary difficulty, we varied the timing for making a response.



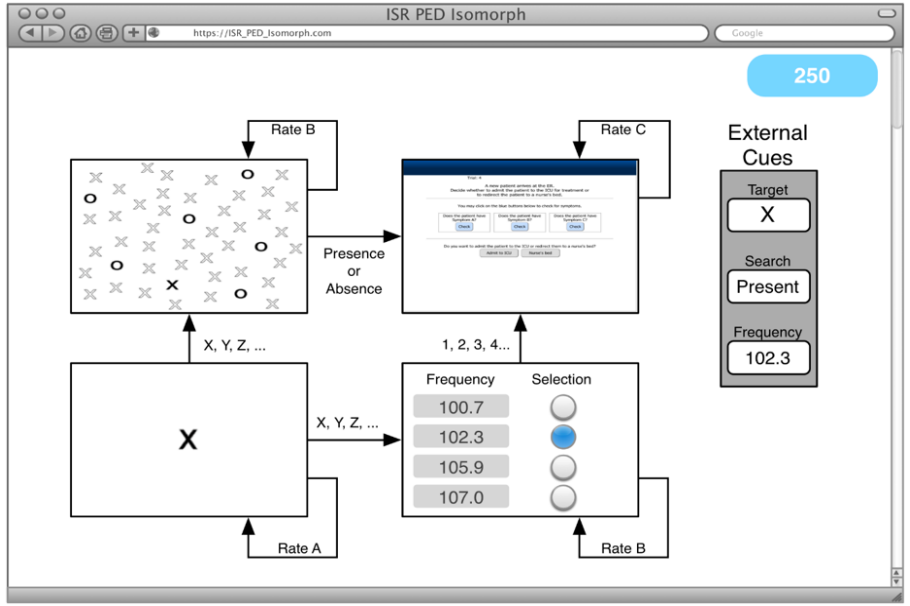


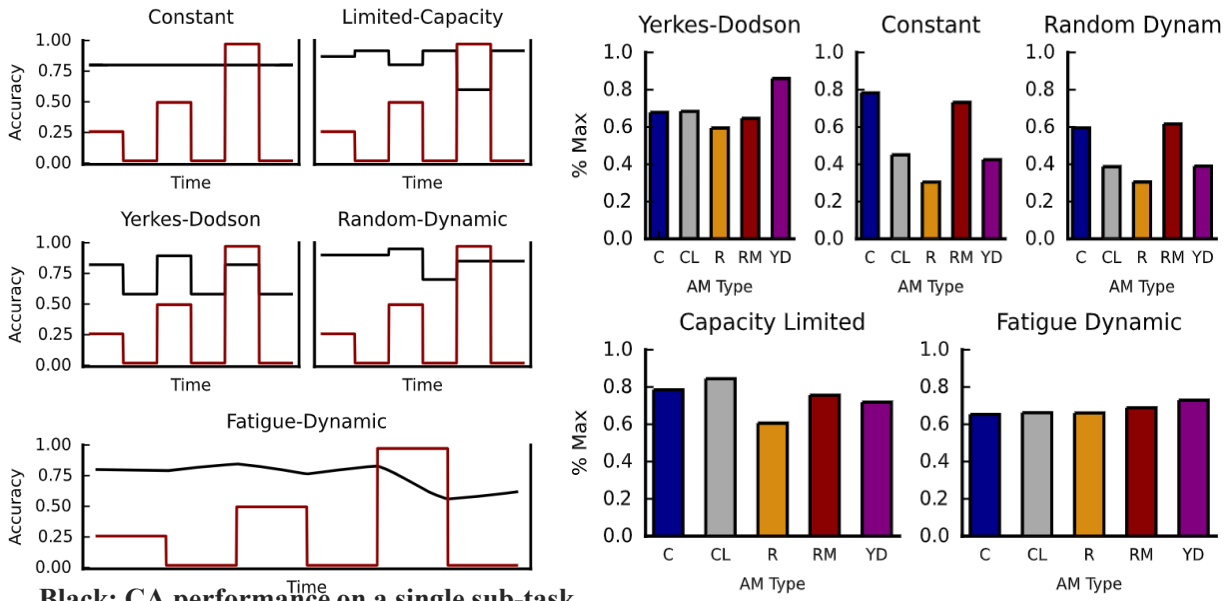
Autonomous Manager

We found that the Autonomous Manager was able to maintain a high level of team performance by reallocating tasks from the human to a simulated automated agent when performance began to suffer, or the human reported high workload. Performance increased in both the Synchronous (easy) and Asynchronous (difficult) condition.

Autonomous Manager

In a follow-up study, we modified the tasking to better emulate ISR environments. The tasking consisted of multiple interdependent tasks, with a PVT, visual search task, auditory search task, and information integration decision-making task. Performance on the search tasks depended upon knowing the target from the PVT, and accurate decision-making depended on accurate performance on the two search tasks.





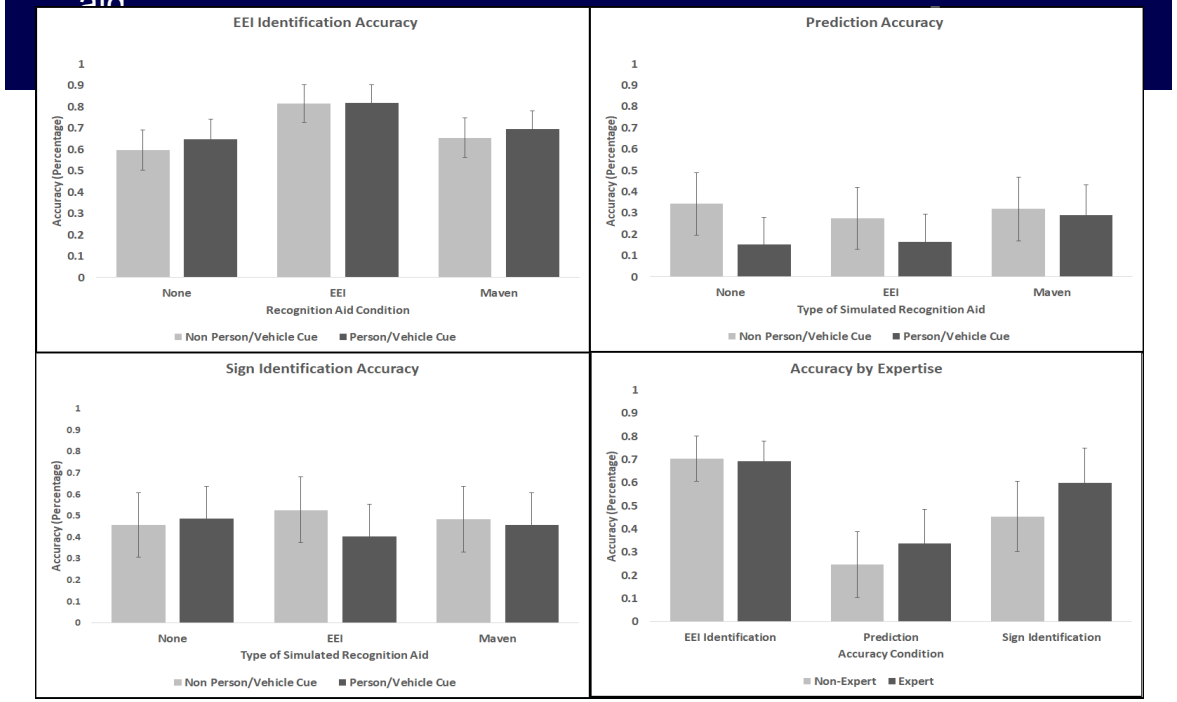
Black: CA performance on a single sub-task.
Red: CA workload in arbitrary units.

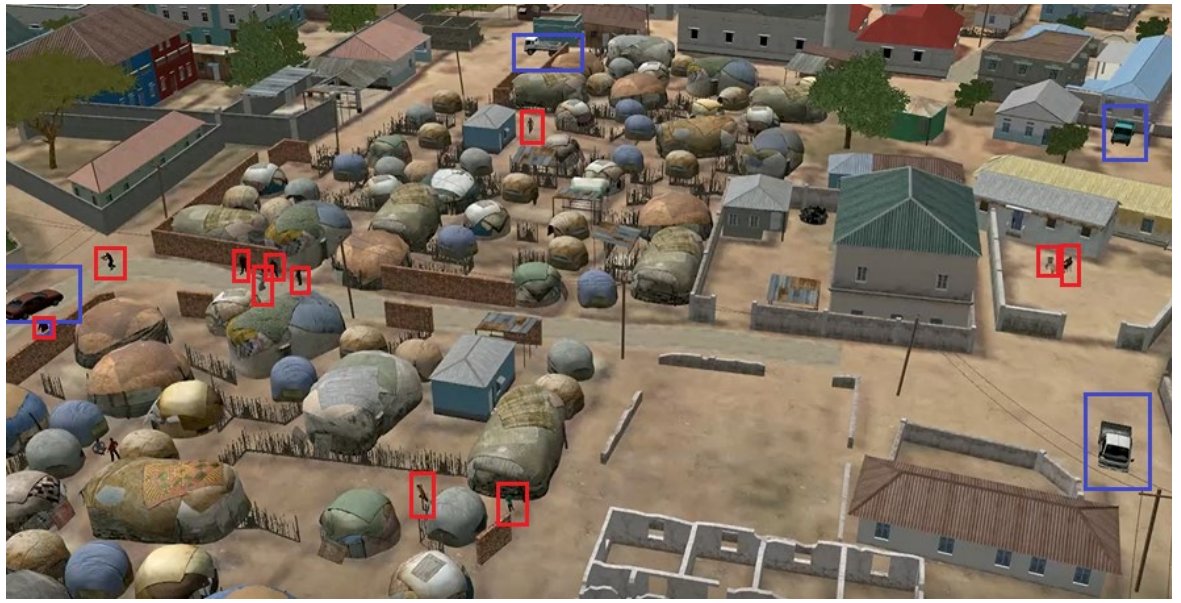
Autonomous Manager

We conducted a series of simulation studies of various Cognitive Agents (CAs) to stress test the design of the Autonomous Managers and ensure robustness across a wide range of individuals and situations. The greatest improvement in accuracy occurred when the AM had an accurate model of the CA; AMs typically performed better than chance; the Constant AM was moderately robust across CA types; all AMs struggled to improve performance relative to chance for the Fatigue-Dynamic CAs.

Recognition Aid

The goal of this project was to determine if providing a recognition aid, which draws attention to all persons and vehicles (emulating Maven) or to Essential Elements of Information (EEIs) in an FMV scene would improve classification of EEIs and sensemaking, compared to having no recognition aid.

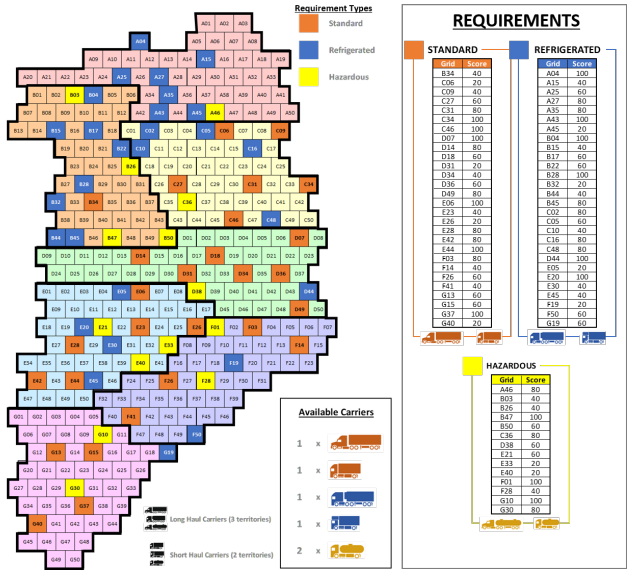




We found that EEI identification accuracy only significantly improved when EEIs were highlighted (not all persons and vehicles) and that sensemaking accuracy improved with the Maven-emulating recognition aid, but only when the key predictor of the event was a person or vehicle. This illustrates that automated recognition aids do not necessarily provide generalized improved performance (reducing cognitive resources), but instead provide a targeted improvement.

Path Planning DSS

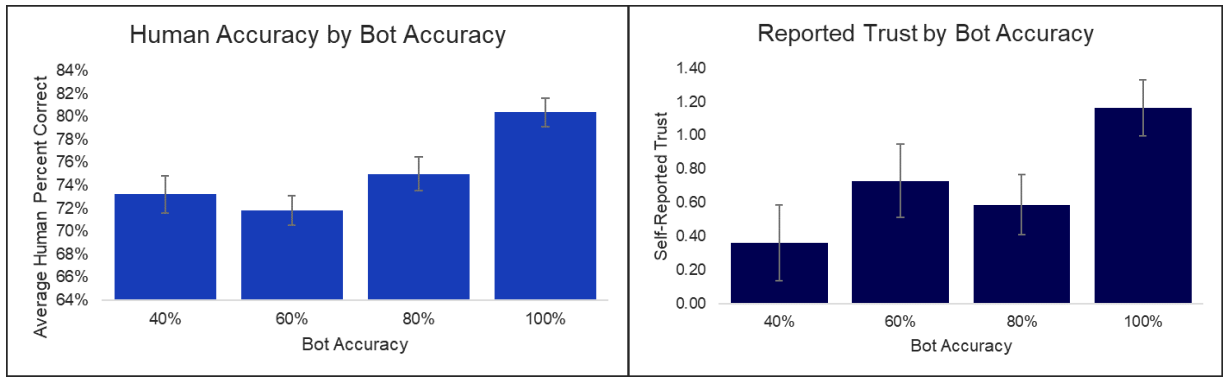
The goal of this project was to determine how the impact of varying levels of a simulated Decision Support System's (DSS) performance on novices' and experts' ability to perform a quality assurance check on a logistics path planning task. We also examined trust in the DSS as a function of DSS performance and transparency into the DSS's process.



SOLUTION

Truck Type	Trailer Type	A	B	C	D	E	F	G	Assigned Regions
1 x Long Haul	Standard			x	x	x			C&D&E
1 x Short Haul	Standard						x	x	F&G
1 x Long Haul	Refrigerated	x	x	x					A&B&C
1 x Short Haul	Refrigerated				x	x			D&E
1 x Short Haul	Hazardous	x	x	x					B&A OR C
1 x Short Haul	Hazardous						x	x	F&G

Required Trailer		A	B	C	D	E	F	G
Standard	Count	0	1	6	7	6	4	4
	Score	0	40	400	440	420	220	240
Refrigerated	Count	7	8	5	1	4	2	1
	Score	480	500	340	100	200	80	60
Hazardous	Count	1	4	1	1	3	2	2
	Score	80	240	80	60	100	140	180



We found that there was a significant decrement in the participants' task performance any time the DSS provided any recommendation that was less than perfectly optimal. Trust in the DSS was correlated with DSS performance. Both experts and novices reported preferring explanations of the DSS' process that emulated the input structure of the task (annotated tables) compared to a simple verbal explanation or a flowchart.

Contact Information

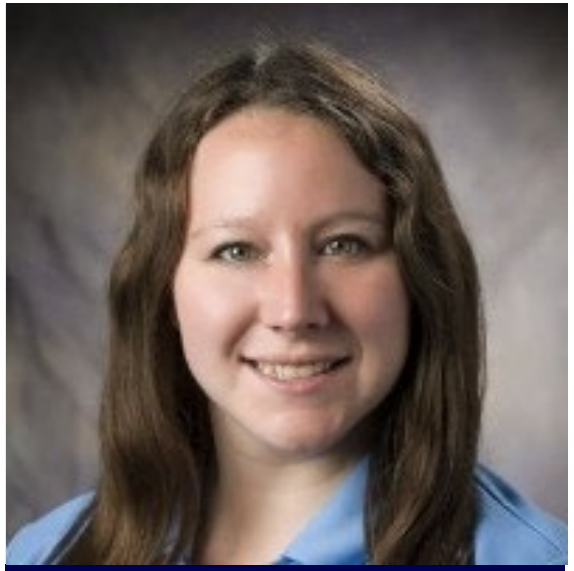
Team Working with AFRL/RHW and NGA

Dr. Mary Frame

Director of Cognitive Research

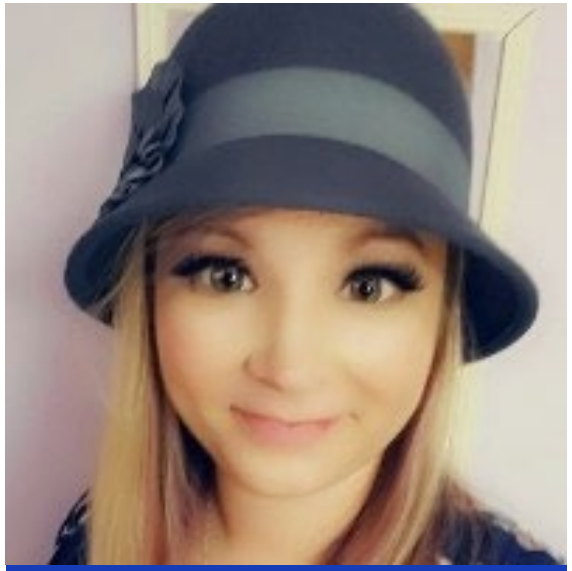
Dr. Barbara Acker-Mills

Senior Research Psychologist



Ms. Anna Maresca

Researcher and Lab Manager



Ms. Erica Curtis

Human Factors Researcher

Contact Information: mary.frame@parallaxresearch.org

Opportunity Review

Technical Applications for Optical Space Situational Awareness (TAOS)

Solicitation #: FA9451-19-S-0007

- **Who**
  - *Gov't*: AFRL
  - *Eligibility*: U.S. entities
- **What**
  - BAA
- **When**
  - *Release*: 20 June 2022
  - *Due*: 15 February 2024
- **Where**
  - sam.gov/opp/d6c694791422419 48e09d167fe874a2f/view
  - POC: Vanessa Garcia, vanessa.garcia.17@us.af.mil
- **Why**
  - *Funding*
    - Multiple awards, not to exceed $49M/award
    - Typical contract period of 5 years
  - *Technical*
    - Research and propose technologies across eight different technical areas in ground-based sensing for space situational awareness

Extramural Biomedical and Human Performance Research and Development

Solicitation #: HT9425-23-S-SOC1

- **Who**
  - *Gov't*: USSOCOM
  - *Eligibility*: U.S. entities
- **What**
  - BAA
- **When**
  - *Release*: 1 August 2023
  - *Due*: 31 July 2028
- **Where**
  - grants.gov/search-results-detail/349586
  - BAA contact, help@eBRAP.org
- **Why**
  - *Funding*
    - $10M total program funding/FY
    - $750K+ individual awards
  - *Technical*
    - Conduct research and develop proposal for one of many areas of interest
      - Damage control resuscitation
      - Prolonged field care
      - Medical simulation and training technologies
      - Human performance optimization

Artificial Intelligence/Machine Learning Capabilities

Solicitation #: TBD

- **Who**
  - *Gov't*: ONR
  - *Eligibility*: U.S. entities
- **What**
  - BAA
- **When**
  - *Release*: 5 May 2024 (est.)
  - *Due*: 9 September 2024 (est.)
- **Where**
  - Small business contact: Brenda Pickett, brenda.pickett@navy.mil
- **Why**
  - *Funding*
    - ~$8.6M total program funding (est.)
  - *Technical*
    - Leverage AI/ML techniques to enable novel capabilities for Navy and USMC forces related to:
      - Mission planning
      - Command and control
      - Logistics
      - Intelligence
      - Training

Strategic Technology Office (STO) Office-Wide

Solicitation #: HR001124S0001

- **Who**
  - *Gov't*: DARPA
  - *Eligibility*: Unrestricted
    - Non-U.S. entities must comply with NDAs and other security regulations
- **What**
  - BAA
- **When**
  - *Release*: 1 November 2023
  - *Due*: 31 October 2024
- **Where**
  - sam.gov/opp/14a3a04135864589b7cdd469337deed2/view
  - BAA coordinator, HR001124S0001@darpa.mil
- **Why**
  - *Funding*
    - Multiple awards anticipated
  - *Technical*
    - Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems
    - Evolutionary research is specifically excluded
      - To avoid duplication of efforts, review current STO programs at:
        - http://www.darpa.mil/about-us/offices/sto
        - http://www.darpa.mil/work-with-us/opportunities

Innovative Approaches to Studying Cancer Communication in the New Information Ecosystem

Funding Opportunity #: PAR-22-164

- **Who**
  - *Gov't*: NIH
  - *Eligibility*: U.S. entities
- **What**
  - Research grant
- **When**
  - *Release*: 13 June 2022
  - *Due*: 6 September 2025
- **Where**
  - grants.gov/search-results-detail/341108
  - Scientific contact: Kelly Blake, kelly.blake@nih.gov
  - Financial contact: Crystal Wolfrey, wolfreyc@mail.nih.gov
- **Why**
  - *Funding*
    - $500k total program funding
  - *Technical*
    - Support research projects in three domains related to cancer communication
      1. Utility/application of new surveillance approaches
      2. R&D of larger-scale interventions
      3. R&D of multilevel models emphasizing bidirectional influence

Tools for Decentralized Clinical Trials for Substance Use Disorder (R41/R42)

Funding Opportunity #: RFA-DA-25-051

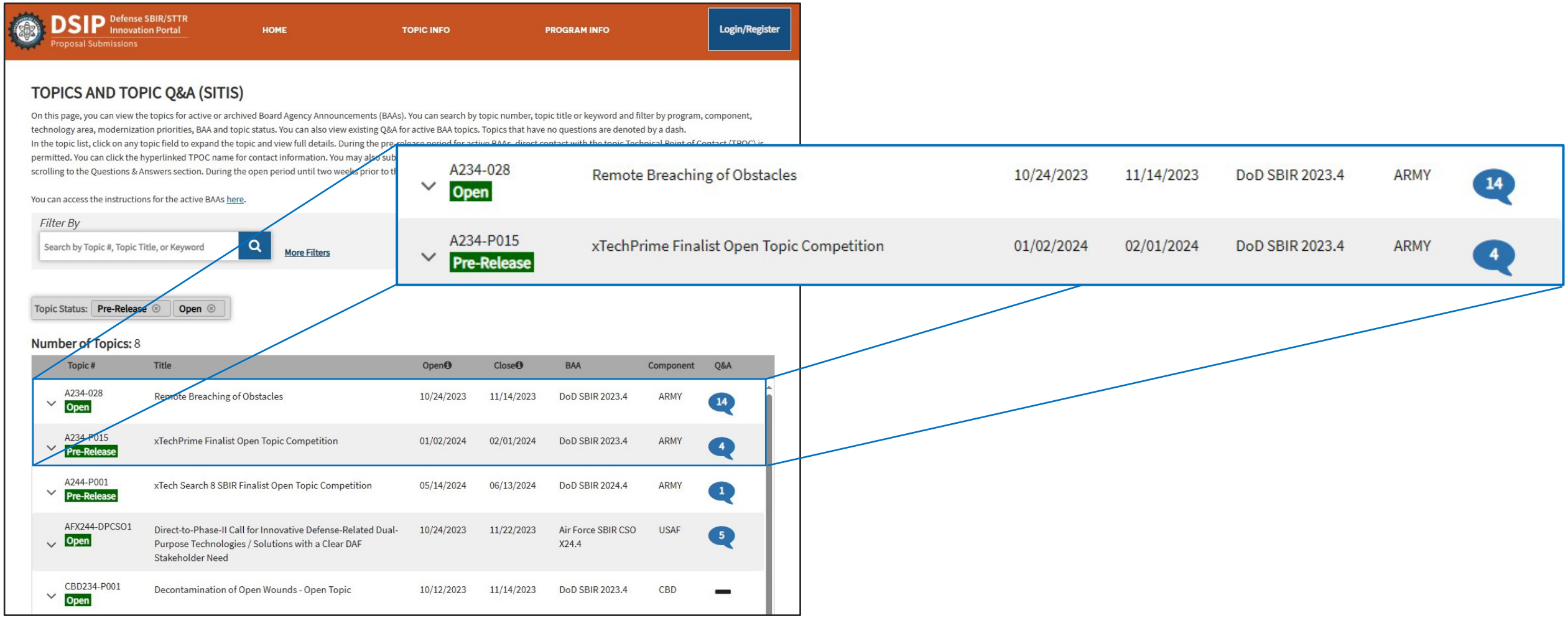
- **Who**
  - *Gov't*: NIH
  - *Eligibility*: U.S. entities
- **What**
  - STTR grant
- **When**
  - *Release*: 25 October 2023
  - *Due*: 14 March 2024
- **Where**
  - grants.gov/search-results-detail/350720
  - Scientific contact: Yordan Kostov, yordan.kostov@nih.gov
  - Peer review contact: Dharmendar Rathore, dharmendar.rathore@nih.gov
  - Financial contact: Amy Connolly, connolla@mail.nih.gov
- **Why**
  - *Funding*
    - $1.97M program funding
  - *Technical*
    - Develop wearable technology that can measure concentration of substances of interest in substance use disorder (SUD) trials

Tools for Decentralized Clinical Trials for Substance Use Disorder (R43/R44)

Funding Opportunity #: RFA-DA-25-052

- **Who**
  - *Gov't*: NIH
  - *Eligibility*: U.S. entities
- **What**
  - SBIR grant, both Phase I and D2P2
- **When**
  - *Release*: 25 October 2023
  - *Due*: 14 March 2024
- **Where**
  - grants.gov/search-results-detail/350721
  - Scientific contact: Yordan Kostov, yordan.kostov@nih.gov
  - Peer review contact: Dharmendar Rathore, dharmendar.rathore@nih.gov
  - Financial contact: Amy Connolly, connolla@mail.nih.gov
- **Why**
  - *Funding*
    - $296K program funding
  - *Technical*
    - Develop wearable technology that can measure concentration of substances of interest in SUD trials

Active DoD BAAs



dodsbirsttr.mil

Helpful Links

1. SAM.gov – Contract opportunities
2. GRANTS.gov – Federal funding opportunities
3. SBIR.gov – SBIR/STTR information and solicitations
4. defensesbirsttr.mil – DoD-specific solicitation information
5. dodsbirsttr.mil – DoD-specific solicitations
6. sbir.nasa.gov – NASA-specific solicitations
7. ohiofrn.org – Help with identifying opportunities, matchmaking, and proposal development
8. apex-innovates.org – Help with SBIR/STTR process navigation and matchmaking

Upcoming Events

- **11th Annual Defense TechConnect Summit & Exposition –** in-person @ Gaylord National Hotel & Convention Center, Washington DC, November 28-30, 2023
- **DDC Annual Meeting + Economic Review –** in-person @ National Museum of the U.S. Air Force, February 7, 2024
- **39th Annual Space Symposium** - in-person @ The Broadmoor, Colorado Springs, CO, April 8-11, 2024

Parallax
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Thank you