

# HUMAN-GUIDED SYSTEM ADAPTATION (HSA) SCIENCE CHALLENGE AND HACKATHON WEEK

Date	Time	Event <u>Underlined = Virtual Participation</u> <b>BOLD = Hybrid Participation</b> <i>ITALICS = In-Person Participation</i>
June 30	12pm – 1pm 1pm – 2pm	<u>HSA Paradigm Challenge Kick-Off</u> <u>HSA Experimentation Challenge Kick-Off</u>
Aug 1	5pm	<u>Deadline for Registering for In-Person Participation including Experimental Challenge and Hack-a-thon <a href="#">(LINK)</a></u>
Aug 8	12pm 12pm – 1pm 1pm – 2pm 2pm – TBD	<u>HSA Paradigm Submission Due</u> <b>Paradigm Week Kick-Off</b> <b>Open Discussions</b> <b>HSA Paradigm Judging</b>
Aug 9	12pm – 1pm 1pm – TBD	<u>HSA Top Paradigm Submissions Video</u> <i>HSA Experimentation Judging</i>
Aug 10	12pm – 1pm 1pm – 2pm	<b>HSA Top Experimentation Talks</b> <i>HSA Hack-a-thon Kick-Off</i>
Aug 11	12pm – 1pm 1pm – 2pm	<b>HSA Paradigm Speakers</b> <b>Open Discussions</b>
Aug 12	12pm – TBD	<i>HSA Hack-a-thon Judging</i>

Sponsored by:

**Columbia Program for Human-Guided Machine  
Adaptation in collaboration with the U.S. Army  
Research Laboratory**



[HSA Background](#)

[REGISTRATION LINK](#)

# HSA PARADIGM CHALLENGE



June 30 (Thurs)	Kick-Off that 1) proposes the future problem space, 2) explains the 6 lines of research, 3) shares Hybrid Team Mega-Tetris openly as an initial baseline paradigm, and 4) details the challenge rules
Aug 8 (Mon)	Video Submissions and Closed-Door Judging
Aug 9 (Tues)	Hybrid Video Sharing and Awards Announced

## Background

- ❑ Challenge is to communicate a human-machine teaming paradigm that inherently incorporates three drivers of the 2040+ (Advanced Intelligence; Superhuman Decisions and Actions; and Rapid Technological Adaptation).
- ❑ The paradigm must be able to address scientific questions in each of the 6 HSA research thrust areas (HGML, Tech Savvy, Hybrid Thinking, Rapid Adaptable Small Teams, Distributed Teams, Acquisition issues)
- ❑ The paradigm is intended to be a shareable/virtual platforms with usability, cost, access, data sharing, virtual collaboration all critical factors

## Competition Details

- ❖ Submission is a 5 min max video with any content
- ❖ Videos will be judged on 3 factors:
  - I. Potential to Represent Drivers of 2040+
  - II. Potential to Address a Broad Range of Critical Scientific Questions
  - III. Potential for Broad Community Usage
- ❖ The Hybrid Team Mega-Tetris Baseline can be expanded, or any other paradigm can be proposed
- ❖ Award for Overall Winner and honorable mentions at the judging panels discretion

# HSA EXPERIMENTATION CHALLENGE



June 30 (Thurs)	Kick-Off that 1) proposes the future problem space, 2) explains the 6 lines of research, 3) shares Hybrid Team Mega-Tetris openly as an initial baseline paradigm, and 4) details the challenge rules
Aug 1 (Mon)	Deadline for Registering
Aug 9 (Tues)	In-Person Science-Fair Style Judging of Submissions
Aug 10 (Wed)	Top Talks give presentations

## Background

- ❑ Challenge is to communicate a human-machine teaming sequence of experiments ( $\geq 5$ ) using a single experimental platform that addresses **a** critical scientific question in one of the 5 HSA research thrust areas (HGML, Tech Savvy, Hybrid Thinking, Rapid Adaptable Small Teams, Distributed Teams).
- ❑ The experimental set-up (team interactions) should be demonstrated potentially with judge participation
- ❑ The experimental paradigm is intended to be a shareable/virtual platforms with usability, cost, access, data sharing, virtual collaboration all critical factors

## Competition Details

- ❖ Submission is a 15 min max science-fair style presentation/demonstration max – potentially with multiple presentation to different groups of judges
- ❖ Presentations/Demonstrations will be judged on 3 factors:
  - Criticality of the Scientific Question
  - Potential for the Experimental Sequence to Answer Scientific Question
  - Potential for Broad Community Usage
- ❖ The Hybrid Team Mega-Tetris baseline or any other paradigm can be developed into an experimental set-up. [LINK TO MEGA-Tetris GITHUB](#)
- ❖ Award for Overall Winner and honorable mentions at panels discretion

# HSA HACK-A-THON



Aug 10 (Wed)	Kick-Off that details the hack-a-thon rules
Aug 12 (Fri)	Submission deadline/Hack-a-thon live competition

## Background

- ❑ Challenge is to win a “Hybrid Team Mega-Tetris” tournament by forming the best team of human and AI Mega-Tetris players.
- ❑ The game will be played live on the final day of the competition with up to 3 human players
- ❑ The intention is to develop a game the needs both human and AI to work together successfully. A base version of the game will be sufficient for the competitors to use the following strategies to potentially win:
  - I. Improving AI Play
  - II. Improving Human-AI interactions
  - III. Improving Human Play

## Competition Details

- ❖ Hybrid Team Mega-Tetris will be used for the competition
  - Options for Overall High Score or Knock-out-Bracket
- ❖ The game can be played with provided Software.
  - The version of the game played with include elements of teaming, advanced intelligence, superhuman requirements, and will adapt during game play
  - The specific details and adaptations of the final game will not be known by the competitors until the tournament starts.
  - Portions of the game will be locked – but the competitors will have access to the AI governing “moves” and access to select “open” game states that are determined by the competition
- ❖ Award for Overall Winner and honorable mentions at panels discretion