ReSCIND Lightning Talk

February 28, 2023

Who is Parallax Advanced Research?

- Non-profit research institute (501(c)(3))
- Dayton OH Headquarters & Satellite Office in Arlington VA
- Skilled in AI, Autonomy, and Human Performance

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Who are Team Parallax's Performers?

Parallax
ADVANCED RESEARCH

- Dr. Othalia Larue—cognitive modeling, computer science
- Dr. Frank DiGiovanni—hacker sociology, soft skills, tradecraft
- Industry leading teammates with cyber offense, defense, and cognitive effects expertise

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Our Expertise and Experience

Parallax
ADVANCED RESEARCH

- AI/ML
- Complex cognitive modeling and simulation
- Human-machine teaming
- Knowledge elicitation and Cognitive Task Analysis
- Dynamic user modeling
- Physiological and behavioral converging measures capabilities
- Cognitive systems design and implementation
- Improving ISR intel gain through cognitive systems engineering

Established record of R&D and transition. These include:

- Ongoing program:
  - **DARPA In The Moment** (prime): design Trustworthy Algorithmic Delegate by creating human-like arguments and decisions that best align to key decision makers cognitive profiles.
  - **NGA GEOCOG:** Modeling ongoing cognitive states of analysts engaged in typical GEOINT workflows from collected user data.
  - **AFRL Human Machine Teaming** for ISR Analysis (prime): Discovery of dispositional and situational variables, and mitigation techniques. Transition: Analyst performance models and studies on drivers for analyst cognition.
- Prior Programs:
  - **IARPA Human Forecasting Competition**: Design task-offload tools to improve performance in geopolitical forecasting by integrating the strengths of human cognitive and reasoning abilities.

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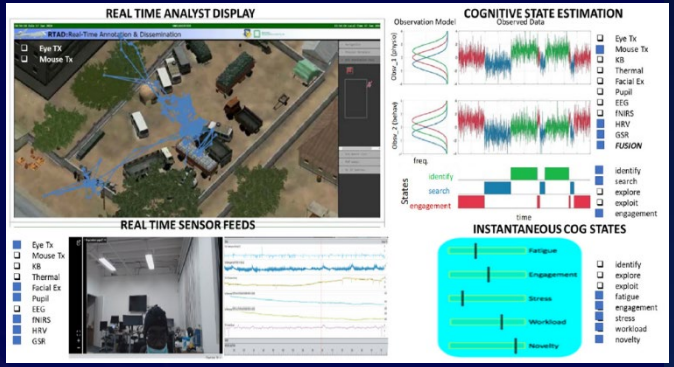
Relevant Expertise and Experience

- Core Capabilities relevant to ReSCIND:
  - Modeling individual and team cognitive biases using cognitive modeling techniques and cognitive architectures, including ACT-R
  - Discovery of dispositional and situational variables and mitigation techniques for forecasting performance
  - Leverage models to tailor responses
  - Experience delivering High TRL solutions

- Differentiating Capabilities relevant to ReSCIND:
  - Access to significant pool of participants with hacker expertise
  - Multi-disciplinary team comprised of cognitive scientists, cognitive psychologists, cyber operators, AI/ML expertise, and sociologists
  - Lessons learned from measuring and instrumenting individual differences and cognitive biases susceptibility in intelligence analysts in action



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Teaming relations sought for ReSCIND

Parallax
ADVANCED RESEARCH

- Reinforcement Learning for Adaptive Cyber Defense

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Parallax
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Advancing the Science of Intelligent Teaming™

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