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Evaluation of Intelligence Analysis Platforms for Networked Information

S&T Campaign: Human Sciences
Integration of Humans and Systems

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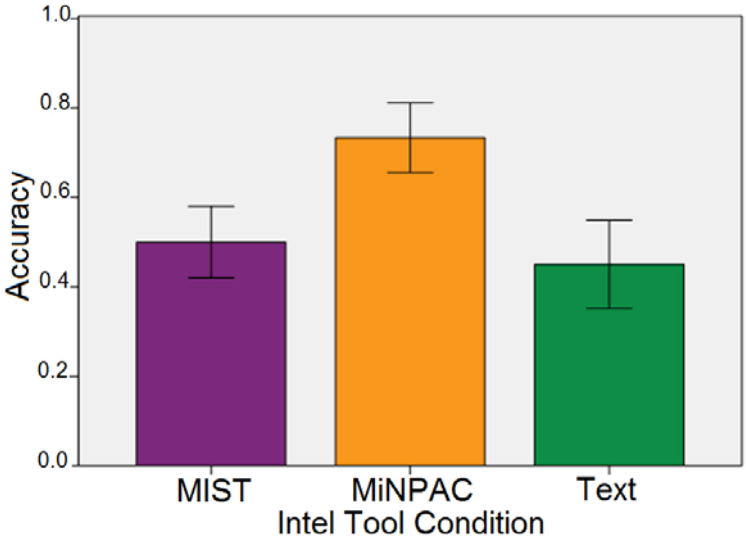
Research Objective

- Specify design criteria for sentiment in intel analysis interfaces
- Evaluate intel interfaces designed to depict sentiment
- Investigate how states and traits affect intel analysis performance

Existing software user interfaces: A) MiNPAC and B) MIST.

Challenges

- Big Data Challenges
- Lack of human factors studies of intelligence analysis interfaces
- Collection of empirical data
- Sentiment is important in asymmetric warfare



Greater accuracy with MiNPAC. MIST, and Text not different.

ARL Facilities and Capabilities Available to Support Collaborative Research

- The Cognitive Assessment, Simulation, and Engineering Laboratory (CASEL) at APG, MD
- Experiments may be run on ordinary PCs
- Intelligence analysts available for consultation
- Expertise of ARL collaborators includes cognitive, informational, and computational sciences
- Established collaborations with North Carolina State University and University of California Santa Barbara professors
- E-Prime® programming expertise
- ACT-R computational modeling expertise
- Access to existing intelligence platforms
- Publication: Kase, S.E., Roy, H., & Cassenti, D.N. (2015). Visualizing Approaches for Displaying Measures of Sentiment. In Proceedings of Society for Photographic Instrumentation Engineers.
- Results so far:
  - Scatterplots better than trend lines
  - Color coding of sentiment helps
  - Present sentiment of two actors at once
  - Input to design better sentiment-intel interfaces
  - Prototype system for future experiments

Complementary Expertise/ Facilities/ Capabilities Sought in Collaboration

- Access to more participants for empirical studies
- Additional Human Factors expertise to improve design
- Social psychological paradigms
- Approaches for adapting training research paradigms to intelligence analysis experimental design
- Additional modeling tools to provide computational explanations of empirical results
- Methods of understanding Big Data challenges in intelligence analysis

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