Technical barriers/problems:
• Utilize sensor networks to locate threats
• Develop distributed algorithms
• Limited power resources in sensors
• Threats unpredictable both spatially and temporally

Objectives:
• Covariance factorization techniques
• Sparsity-aware information processing
• Block-coordinate descent optimization

Accomplishments:
• Superior identification performance compared to existing alternatives
• Probability of detecting threats increases
• 1 Journal publication (in preparation)
• 1 Conference paper
• 1 M.S. working on it; Collaboration with UTK

(II) Performance assessment of our approach (black and magenta curves)
Technical barriers/problems :
• Compress data while removing noise
• Exploit structuring in the data (sparsity)
• Probabilistic data models not available
• Noise has unknown characteristics

Objectives:
• Principal component analysis
• Norm-one regularization
• Block-coordinate descent optimization

Accomplishments:
• Novel compression and denoising approach
• Improved data reconstruction quality
• 1 Journal publication (to appear)