Despite significant recent progress in automatic target exploitation (ATE) and recognition (ATR), current ATE systems do not meet the requirements of modern battlefield environments. Next generation ATE systems must actively manage sensor resources, aggregate sensed information across multiple platforms and diverse signaling modalities, and adapt to increasingly agile adversaries and operating conditions.

Thus, the fundamental research challenge is to develop an integrated systems theory that jointly treats information fusion, control, and adaptation using multiple, dynamic multimodal sensor platforms in resource constrained environments.