



SPO

Sensor Exploitation Challenges

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Goals

SPO

- **Accurate surveillance, identification, and targeting**

- Complete
- Correct
- Timely
- Precise

**All target types
All situations**

Better Sensors

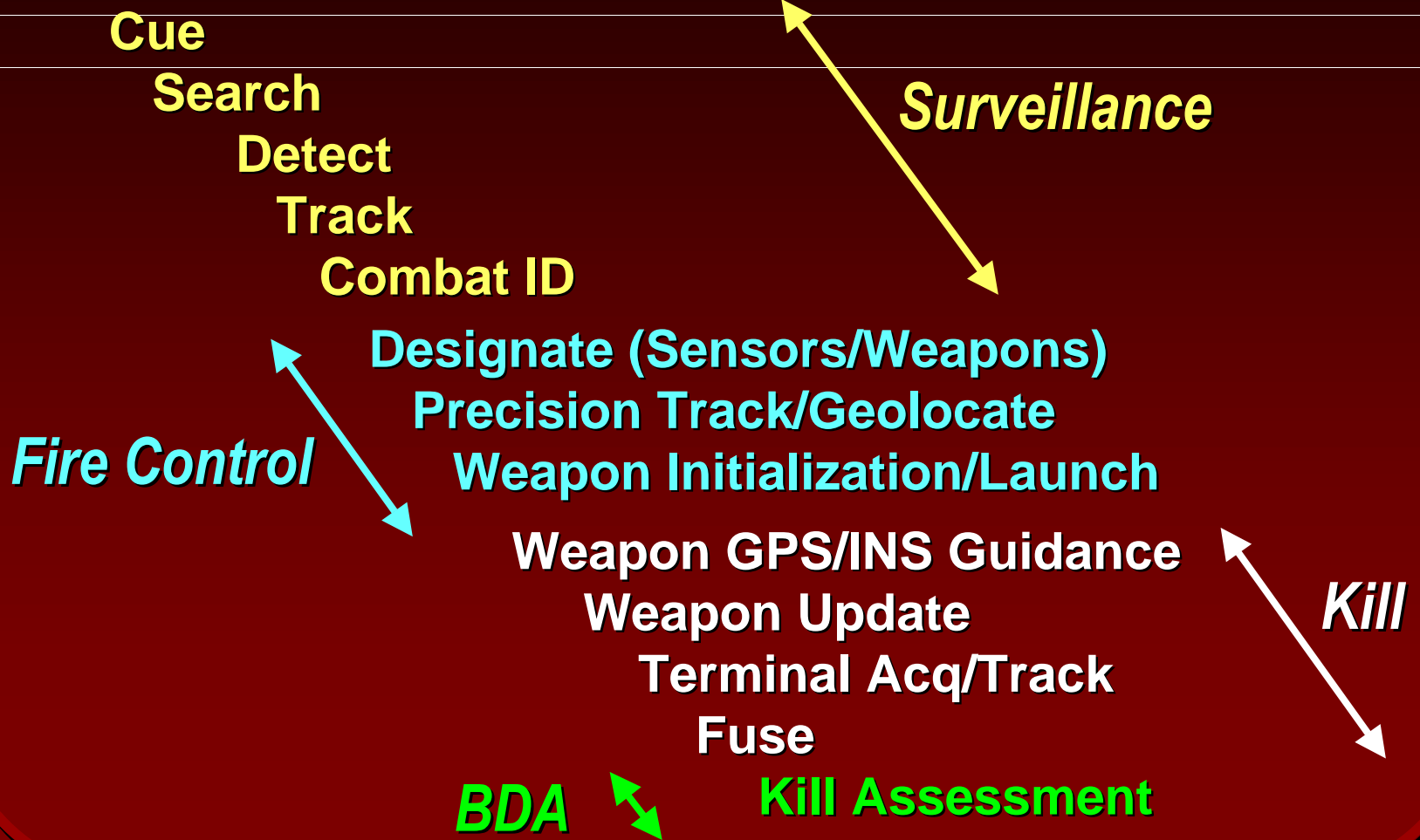


Better Algorithms



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Kill Chain





Surveillance

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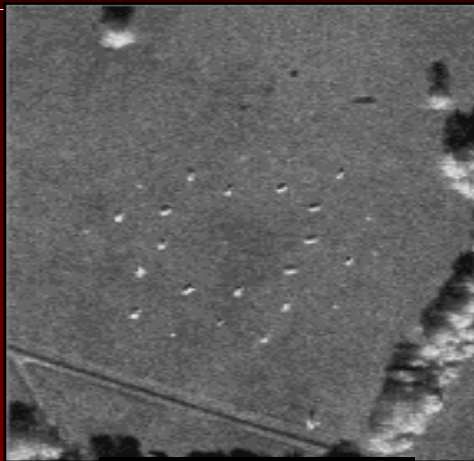
- **Semi-Automated IMINT Processing (SAIP)**
 - Wide area target detection from SAR
- **Multi-Sensor Exploitation Testbed (MSET)**
 - Defeat camouflage and concealment using FOPEN and hyperspectral

**Continuous surveillance of mobile targets,
despite countermeasures**

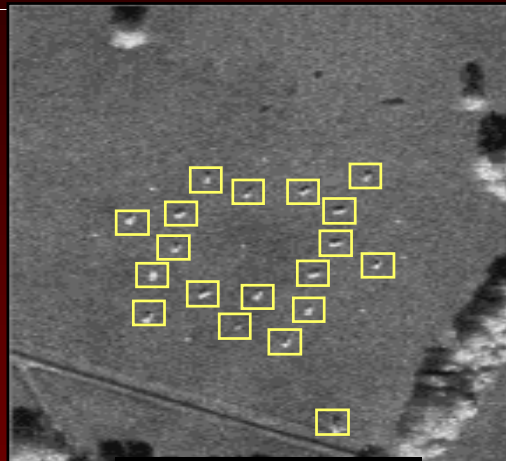


Target Identification

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SAR Image



Detections



ATR Output

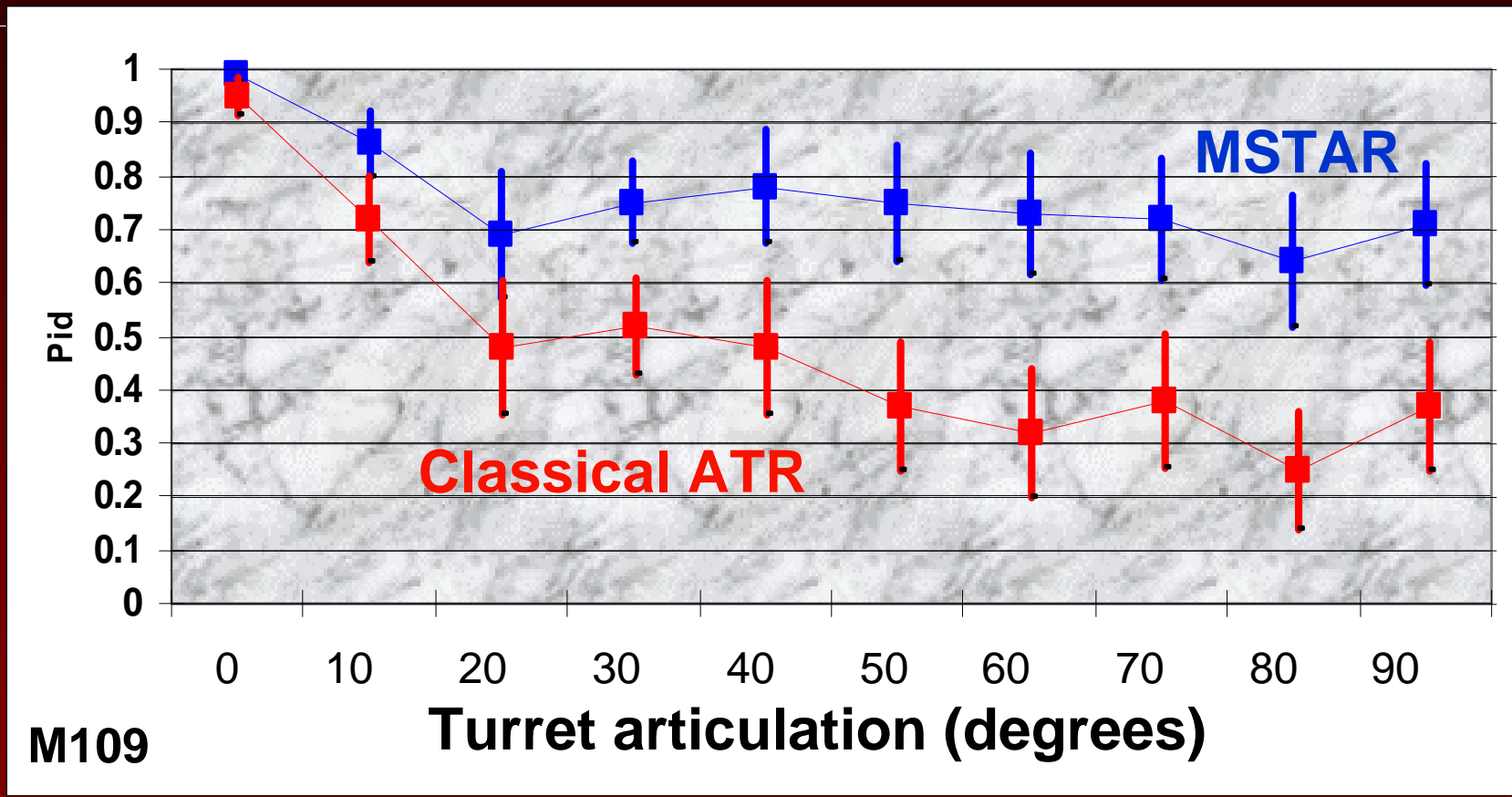
MSTAR model-based approach:

Use 3D model to predict appearance
under varied conditions



ATR Comparison

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Non-Cooperative Ground Target Identification

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- **Multiple phenomenologies**
- **Consider all observables**
 - Spatial
 - Spectral
 - Temporal
 - Polarity
 - Context
- **Model-based approach**

**Realistic
operating
conditions**



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Precision Targeting

- **Affordable Mobile Surface Target Engagement (AMSTE)**
 - Precision tracking of mobile targets using GMTI
- **Airborne Video Surveillance (AVS)**
 - Precision geolocation of multiple targets from EO/IR video

All targets All situations



Sensor Exploitation Challenges

SPO

- **Wide Area Surveillance**
 - Mobile targets, countermeasures, continuously
- **Non-Cooperative Target Identification**
 - Model-based approach
 - Take a systems view
- **Precision Targeting**
 - All targets, all situations