

# Automatic Target Recognition

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**WU Faculty: Joseph A. O'Sullivan, Daniel R. Fuhrmann**

**Boeing Engineers: Chris Martens, Jim Meany, Andrew Oldroyd**

- **Automatic Target Recognition Using Radar and Ladar Sensors**
  - **Matthew L. Cooper, DSc 1999**
- **Automatic Target Recognition: Performance Measures and System Complexity**
  - **Michael D. DeVore, DSc 2001**
  - **David W. Rieken, DSc 2002 (expected)**

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- **Automatic Target Recognition Using Radar and Ladar Sensors**
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  - **Information measures to predict performance of ATR systems**
  - **Sensor Fusion: Radar, Laser Radar, Infrared**
  - **Relationship to Face Recognition Technology**

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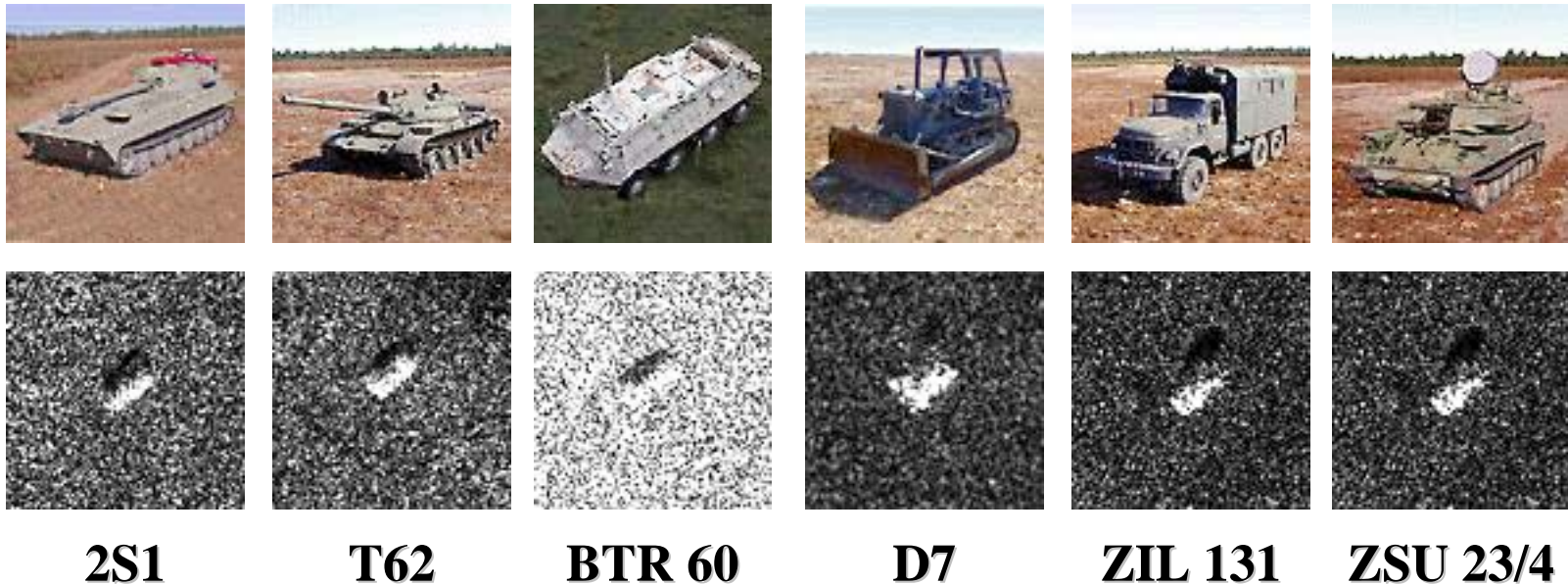
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# Automatic Target Recognition from SAR Data

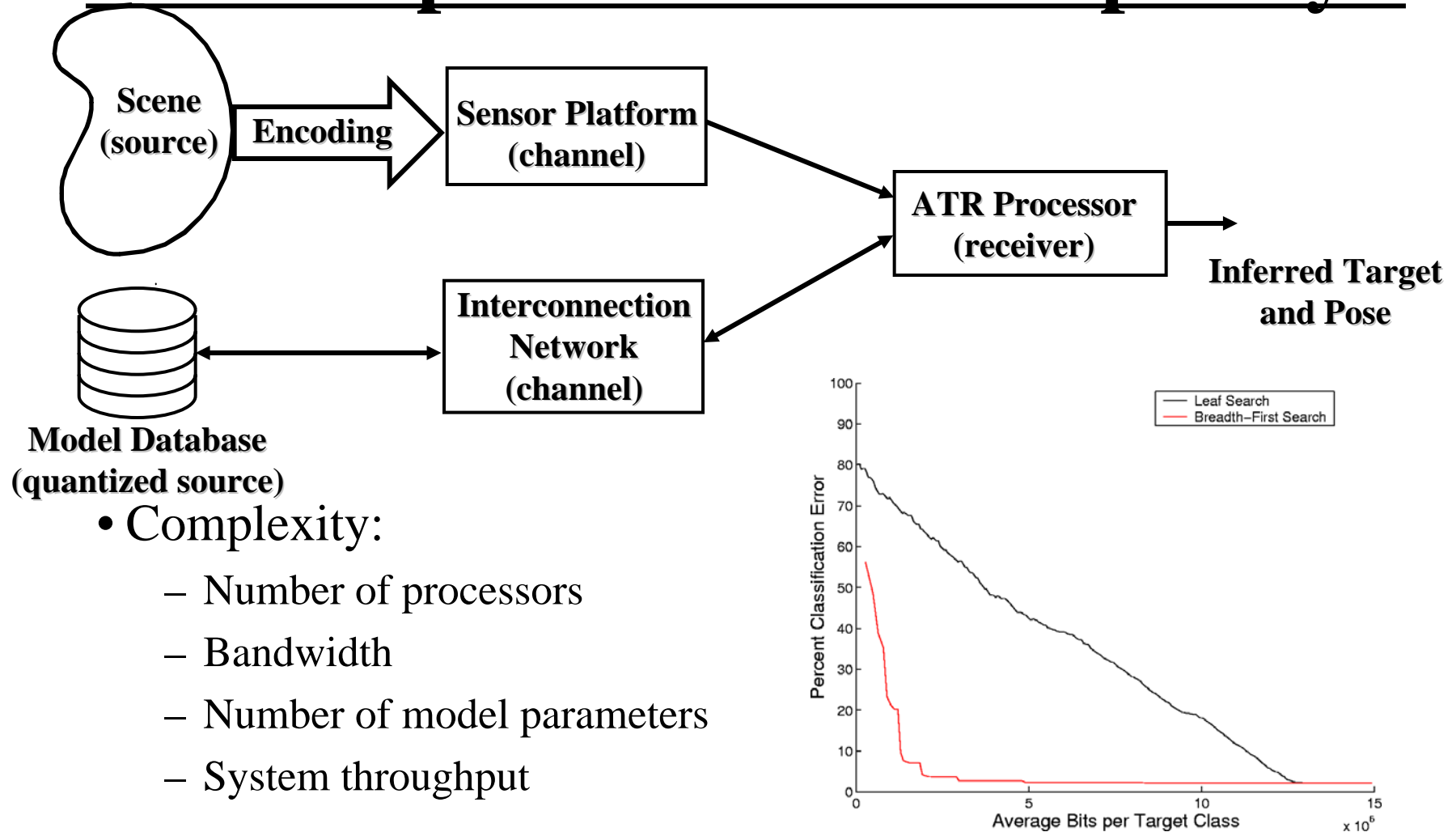
## Target Classification Problem:



Given a SAR image  $r$ ,  
determine a corresponding  
target class  $\hat{a} \in A$



# Performance as a Function of Implementation Complexity





# Boeing/SEAS Graduate Fellowship Program

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# David W. Rieken

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- B.S. Computer Engineering, UIUC, 1994
- M.S.E.E., UIUC, 1996
- Engineer, Boeing Co. 1996-1999.
- Doctoral Candidate, WU, 1999-present
- Summer Research Engineer, MIT Lincoln Laboratory, 2001



## Statistical Signal Processing for Time-Varying Sensor Arrays