

# *Air-Coupled Acoustic Microsensor Technology*

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# *Air-Coupled Acoustic Microsensor Technology*

## **Objective:**

- Demonstration of Micro-electro mechanical (MEM) transducer arrays for three-dimensional detection, capture, and tracking of sound sources in noisy environments



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## **Technical Approach:**

- Develop arrays of acoustic transducers  
(20 Hz -200 KHz)
- Integrate microphone arrays with filtering and  
speech processing electronics
- Demonstrate remote sound detection in noisy  
environments



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## **Potential DoD Applications:**

- Distributed Sensors (Sensing Fields, Underground Facility Detection)
- Urban Warfare (Enhanced Listening)
- Acoustic Robotics

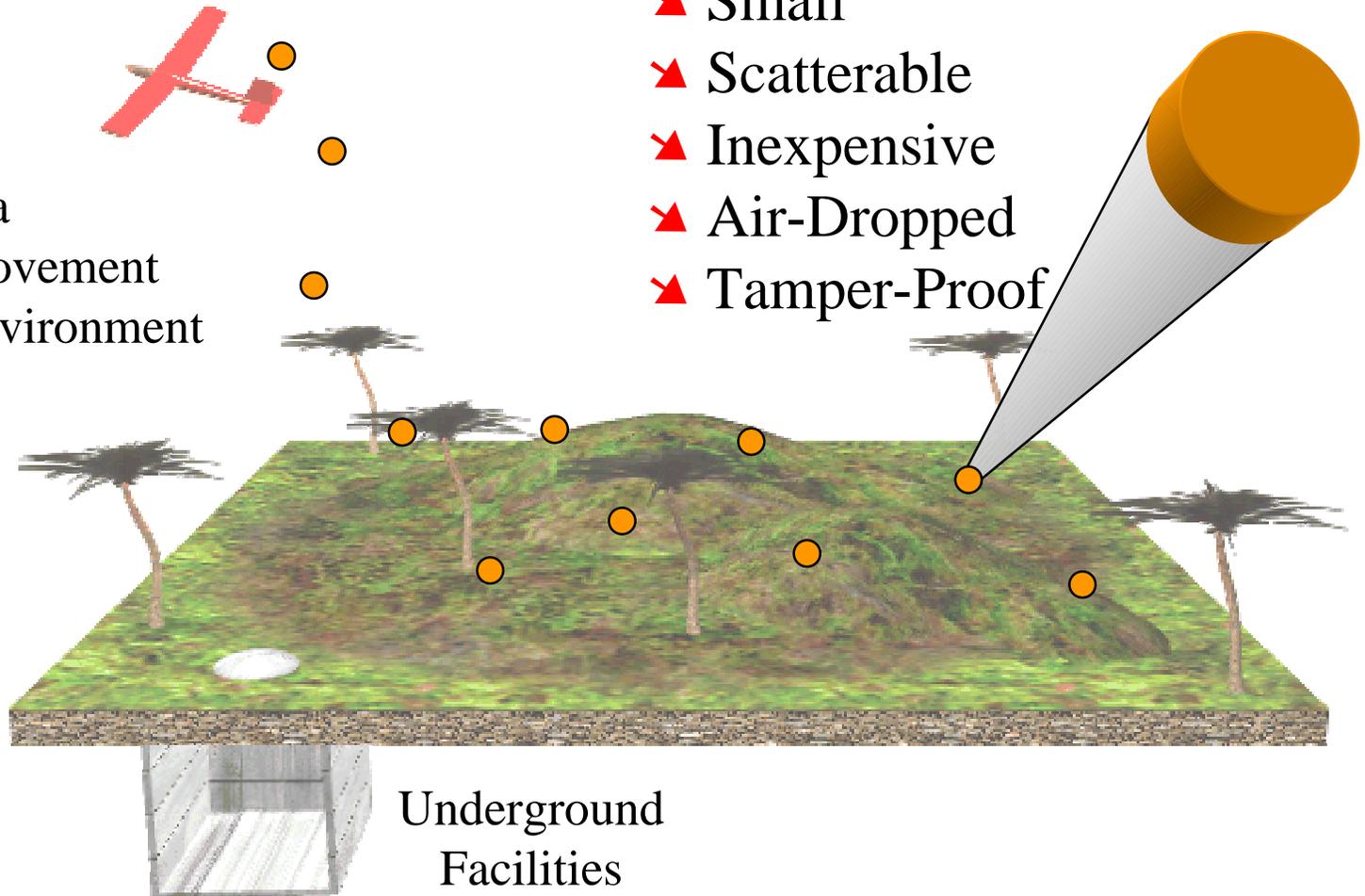


# Sensing Fields

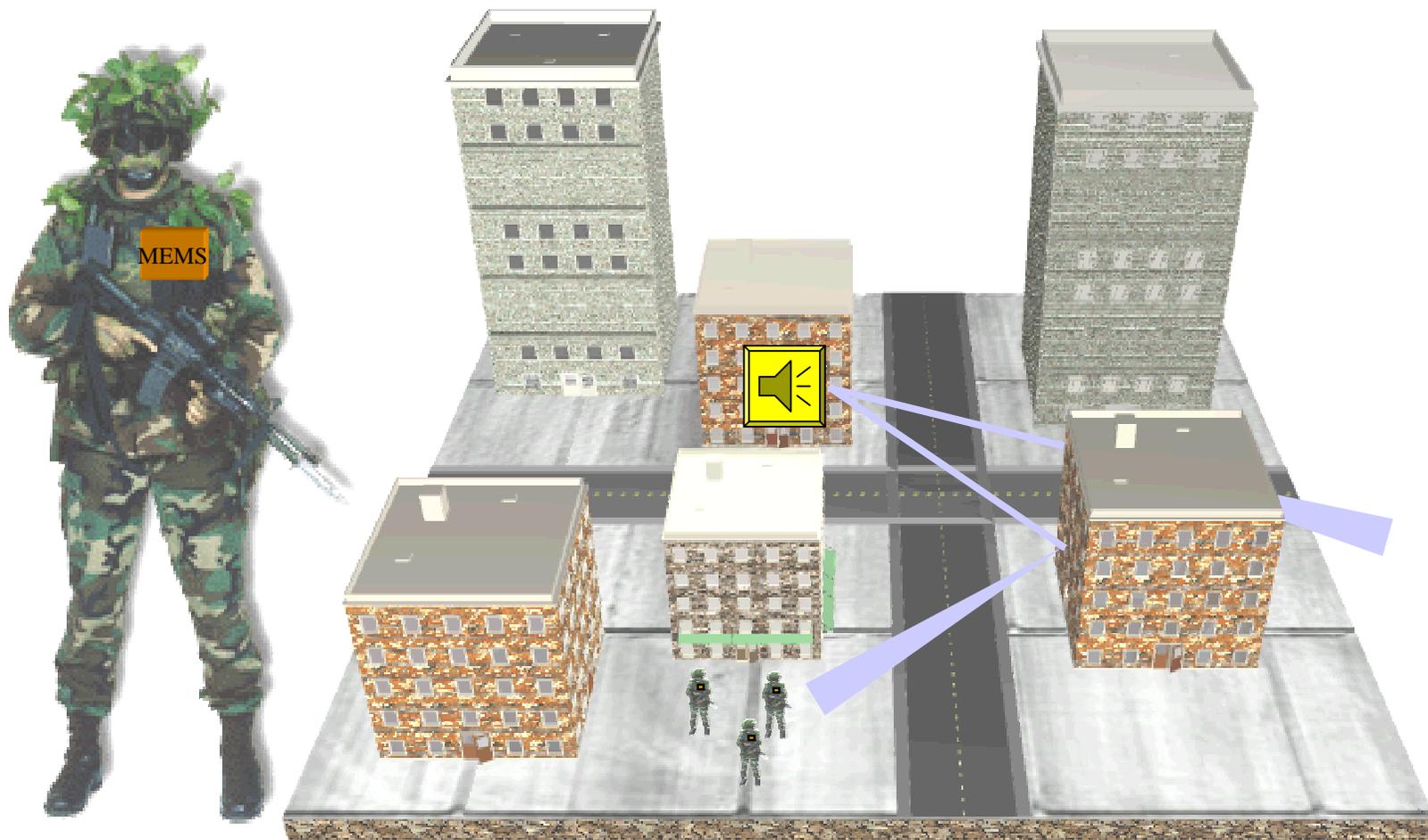
Area

- Movement
- Environment

- ▶ Small
- ▶ Scatterable
- ▶ Inexpensive
- ▶ Air-Dropped
- ▶ Tamper-Proof



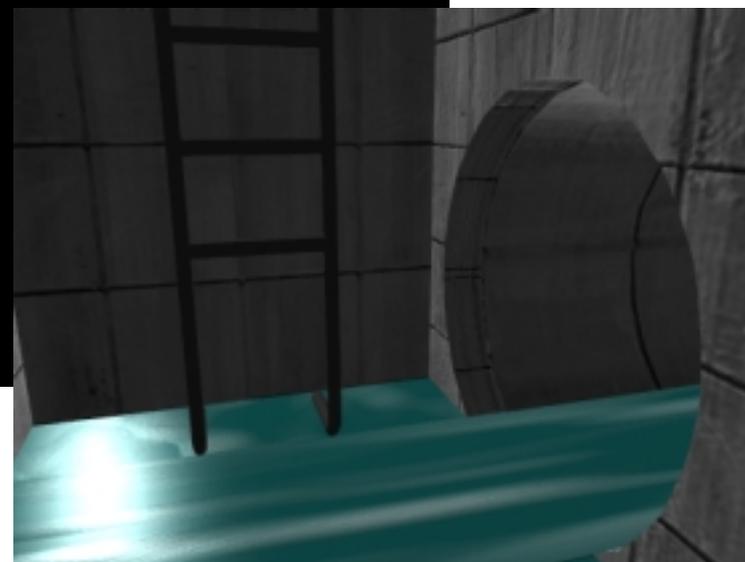
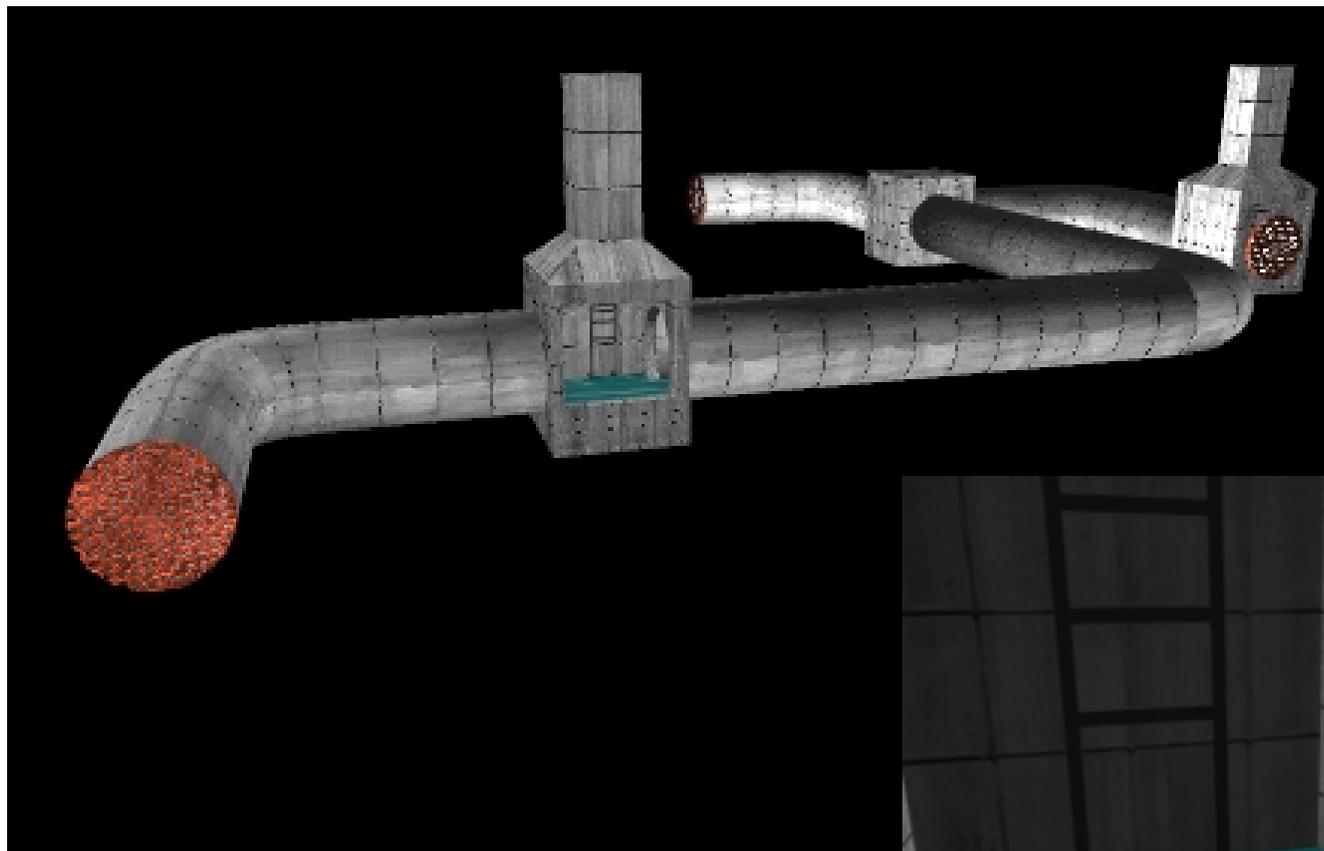
# *Sound Origination/Enhanced Listening*



*Wearable Acoustic MEMS “Patch” With Enough Arrays  
To Be Able to Distinguish the True Origination of Sounds*



# *Acoustic Robotics*



# *Workshop Topics*

- **Miniature Microphone Technology**
- **Nature-Inspired Acoustic Sensor Systems**
- **Active noise control**
- **Sensor Arrays and Distributed Sensors**
- **Military Applications**



# *Commonly Asked Questions*

- What are we trying to accomplish?
- How is it done now, and with what limitations?
- What is truly new in this approach which will remove current limitations and improve performance? By how much?
- If successful, what difference will it make?

