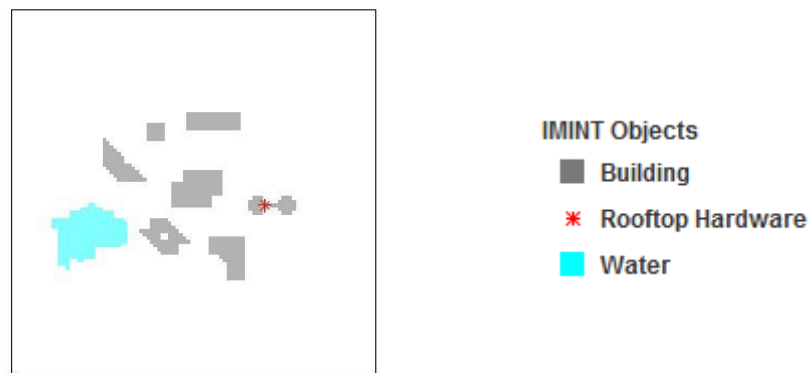## *Tutorial*
PLEASE READ CAREFULLY

1. Task Overview

In this task, you will learn to differentiate 4 facilities using simulated geospatial (map-like) data. The task will take 2-3 hours, and breaks will be provided. Taking notes or using external devices is not permitted.
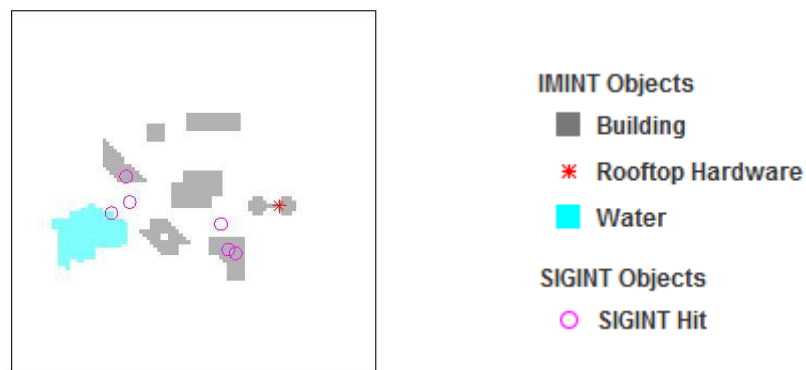
2. Data

There are 3 categories of data associated with the task. Each category is presented in a "layer," and different layers can be presented simultaneously.
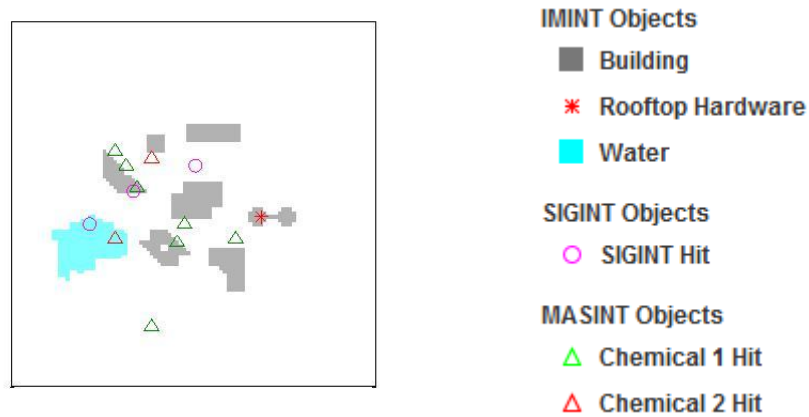
  a. IMINT (Image Intelligence): the location and shape of a building, water features, and the presence or absence of rooftop hardware, e.g., a satellite dish.

  b. SIGINT (Signals Intelligence): intelligence gathered by the interception of signals; each 'hit' denotes an intercepted signal at that location (e.g., a government-issued cell phone).
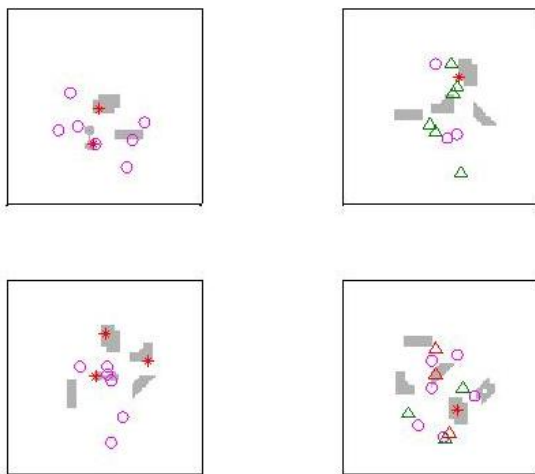
c. MASINT (Measurement and Signature Intelligence): chemical intelligence; each 'hit' denotes that a chemical has been detected at that location.

IMINT Objects
- ■ Building
- ✳ Rooftop Hardware
- ■ Water

SIGINT Objects
- ○ SIGINT Hit

MASINT Objects
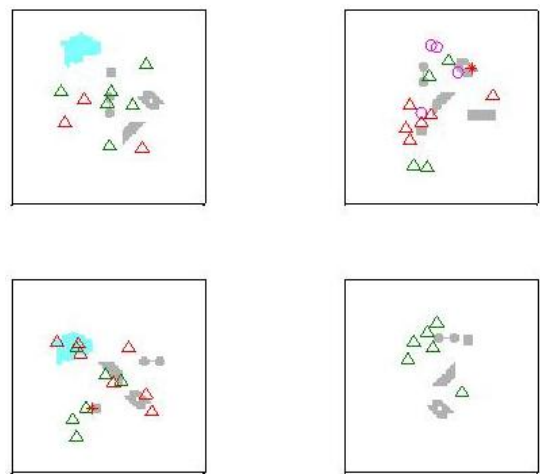- △ Chemical 1 Hit
- △ Chemical 2 Hit

3. Facilities

Over the course of the task, you will learn to identify 4 fictitious facilities (e.g., ketchup-, mustard-, salt- and pepper-producing factories). Facilities will differ in appearance from one another (for instance, SIGINT may be reliably associated with one facility but not another; see example below). It is your job to identify and leverage these differences to classify a number of unknown facilities.

Ketchup Factory   **Mustard Factory**

What do I need to know to identify a facility?

IMINT

- The presence or absence of water.

- The presence or absence of rooftop hardware.
- The number of buildings present.
    - The shape of those buildings.
    - The spatial configuration of those buildings.

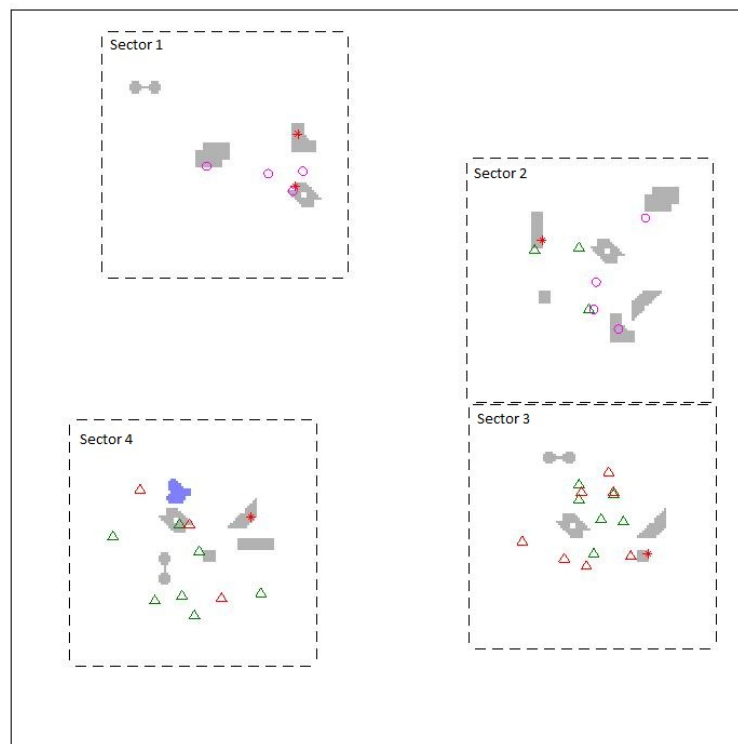SIGINT

- The number of 'hits.'

MASINT

- The chemical identified.
- The number of 'hits'.

What <u>don't</u> I need to know to identify a facility?

- The orientation of a building.
- The orientation of buildings with respect to one another.
- The orientation of the facility itself.

4. Scenes

Each scene is comprised of 2-4 sectors, denoted by a dotted black line. Each sector contains a single facility.
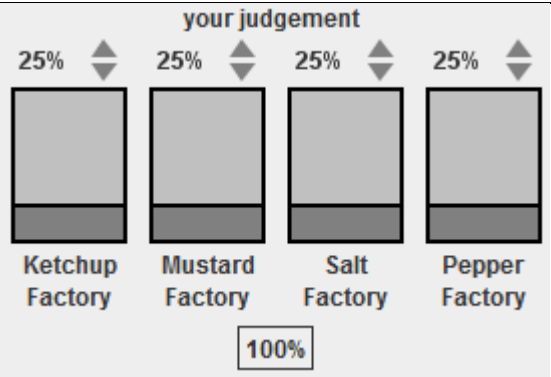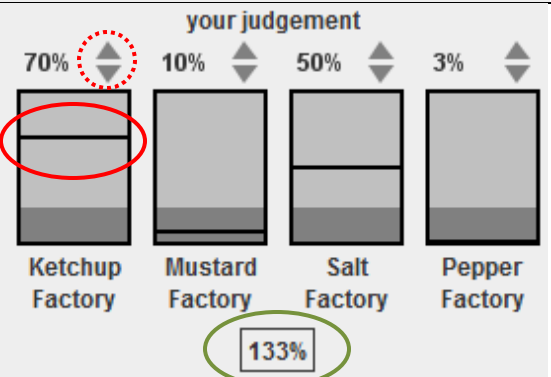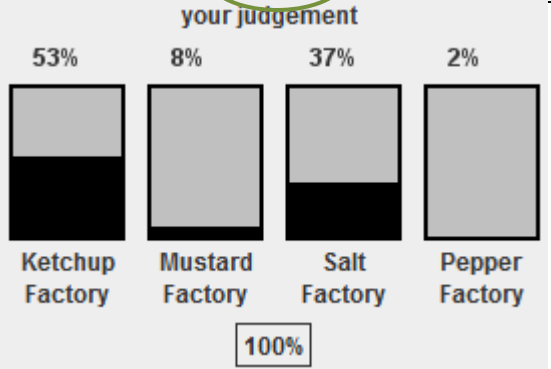
5. Questions

The test will comprise of a series of multiple-choice questions. You will be asked to either:

1. **Locate** a candidate facility in the scene, or
2. **Identify** a facility in a particular sector.

The data will be presented 'simultaneously' (all at once), 'sequentially' (one layer at a time), or 'sequentially based on user choice' (you will be asked which layer you would like to see next).
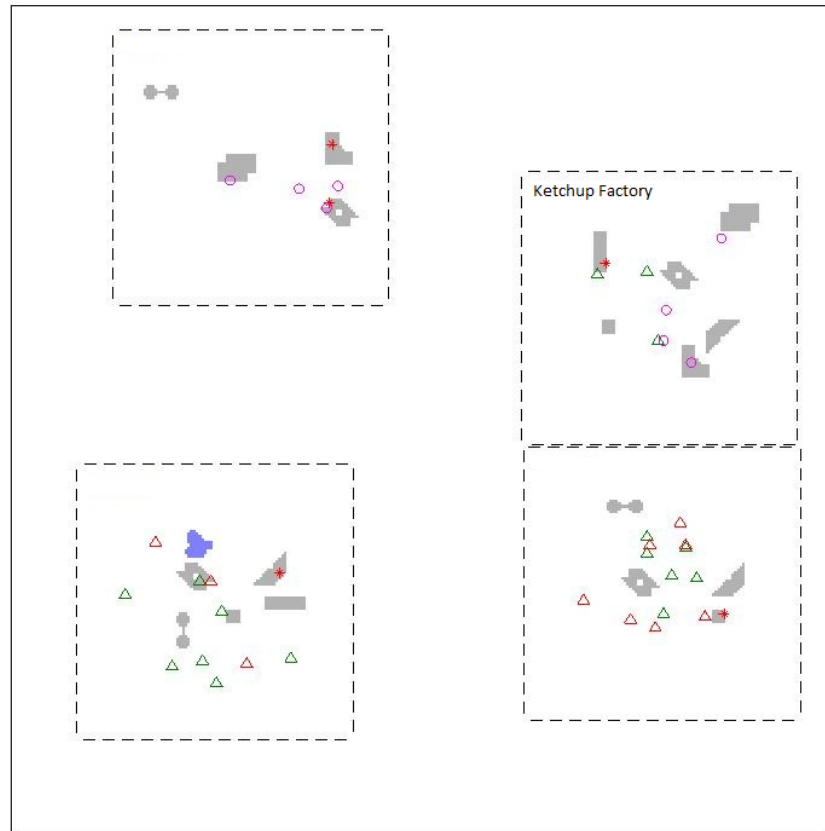
All responses will be in the form of likelihoods (e.g., the probability that a particular sector contains a facility).

	(Left) A screenshot of the GUI you'll use to report probabilities; you'll have a chance to practice with the actual GUI before starting the task.
	For each probability assessment, answers can be reported in one of two ways: • Drag the bar up or down (red circle, solid) • Click the up/down arrow (red circle, dotted). The shaded region shows your previous probability assessment (defaults to 25%). The number at the bottom is the sum of all 4 probability assessments (green circle)
	The GUI will automatically normalize your answers (so they sum to 100%) before proceeding to the next question. Final answer (left): 53% likely the target facility is a Ketchup Factory, 8% likely the target facility is as Mustard Factory etc.

6. Training

You will have the opportunity to train to improve your facility-identification performance throughout the task. Training can take one of two forms:

    a. Annotation: Scenes will be presented one at a time; in each, one or more facilities will be labeled (see below).

    b. Rules: You may be presented with a 'rule' to help you distinguish one facility from another. Rules can be revisited at any time during the task.

      Examples:
- Ketchup Factories contain more than 1 piece of rooftop hardware.
- Salt Factories are located in the same sector as water 80% of the time.

If you have any questions, please ask now. If not, please continue.