

Ex6: Joint probabilistic world model

Idea

- Agents might have heat sensor
- Measuring thermal + sigma
- Collect multiple measurements from the same Civilian
- Fuse them in the center to get better (global) estimate

Updated Code

```
public class ExplorationCivilian {
    enum SENSE_STATE {
        SS_UNKNOWN,
        SS_TRUE,
        SS_FALSE,
    };

    Civilian civilian;

    SENSE_STATE thermal;
    SENSE_STATE sound;
    SENSE_STATE motion;
    SENSE_STATE co2;
    int lastSeenTime;
    double thermalValue, thermalSigma;
    ...
}
```

World model (1)

- lastSeen should not be old
- Agent should have a heat sensor (sense state should not be SS_UNKNOWN)
- Send thermal+sigma to Center

World Model (2)

- Collect all thermal + sigma for each Civilian
- If measurement received and Civilian is already known: Fuse the two Gaussians
- Output each round the current estimates
- Testing: Make sure you have multiple observations by changing agent's behavior