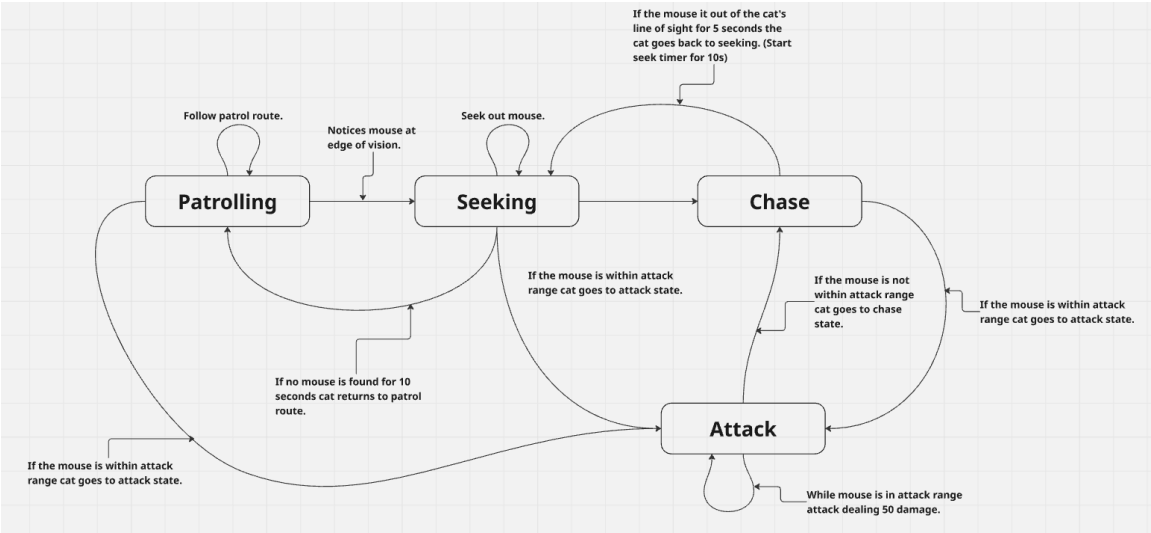
CISC 486 A2

Adithya Raj, Dayna Corman, Aydan Macgregor

September 2025

1 Cat AI FSM



This finite state machine (FSM) models the behavior of a cat interacting with a mouse. The system consists of four states: **Patrolling**, **Seeking**, **Chase**, and **Attack**. The transitions between these states depend on visibility, distance, and timers.

1. Patrolling

Behavior: The cat follows its patrol route.
Transitions:

- If the mouse is noticed at the edge of vision → **Seeking**.
- If the mouse is within attack range → **Attack**.

2. Seeking

Behavior: The cat actively searches for the mouse.
Transitions:

- If the mouse is found but not in range → **Chase**.
- If the mouse is within attack range → **Attack**.
- If no mouse is found for 10 seconds → **Patrolling**.

3. Chase

Behavior: The cat aggressively pursues the mouse.
Transitions:

- If the mouse is within attack range → **Attack**.
- If the mouse escapes line of sight for 5 seconds → **Seeking** (with a 10-second timer).

4. Attack

Behavior: The cat attacks the mouse, dealing 50 damage (half of the mouse's total health) while it is in range.
Transitions:

- If the mouse moves out of attack range → **Chase** (if visible) or **Seeking** (if lost).