Rodent’s Revenge:

An A*awesome Application
Brought to you by:
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What we did.

- Created a game based on the classic Windows game Rodent’s Revenge.
  - Multiple levels
  - Multiple difficulties
  - Smart AI Killer Cats
But how?

- **Problem**: How do we make a fast, effective search method for the AI?
  - Many cats in one game searching through all possible paths to the rat is very costly.

- **Solution**: A* Search!
What’s A*?

- A form of best-first search that uses a heuristic function \( h(n) \) to estimate the cost of the best path to a goal node.
- A* uses a combination of \( h(n) \) with the cost \( g(n) \) of reaching a node to determine \( f(n) \).
- A* will move towards the goal state by following the nodes with the lowest \( f(n) \).
A* Star continues...

Our implementation (simplified):

- While we’re not at \( f(n) = 0 \) (at the goal),
- Scan surrounding squares
- If moveable, add to open priority queue
- Add current square to closed queue
- Pop lowest f-valued node off open queue
So what’s in a game?

- 6 different boards
- 4 difficulty levels
- AI “intelligence” based on level and difficulty combination.
- Up to 6 active AI’s at once.
- OpenGL-powered graphics
- Fun sound effects and music.
Game Demo Time!
Questions?

THE END