Project Abstract

201401443 Akshay Miterani
201401456 Mihir Limbachia

1. **Foraging**

A cellular automaton simulation and visualization of a detour problem in which a blind rat adjusts its path to food in a changed landscape. In one psychological experiment, a blind rat is released from a starting gate into an enclosed area. The starting gate is on the left wall, near the northwest corner, while the goal, food, is on the right wall, near the opposite corner. The area has a barrier wall parallel to the left and right walls, and the barrier has an opening not far from the south end. For five times, the rat is released and allowed to find the food, which is replenished for each training session. Its path becomes increasingly more efficient as it learns its way. Then, the barrier is removed, and for several more times, the rat searches for food. With some variation, the trial rats quickly adjusted their trails to head straight for the food.

The computational scientists that developed and analyzed simulations of this experiment wrote, “The difference between smart and less smart subjects lies in their ability to change their maps, not in the level of cognitive processing after they’ve learned the new map.” Discuss the results of
your simulation as it applies to this statement (Reid and Staddon 1998).