

Natalie Murray
EECS 472 Progress Report
3 June 2013

Most of the non-Pacman code is done, the rest is aesthetics- the 'draw your own maze' feature is in there as well. In terms of the collaboration coefficient algorithm, I found a problem with implementing it using diffuse4 because you can't really use the 'collaboration coefficient' with diffuse4. I was able to get the desired behavior, however, by just having cells whose diffusion value is dampened by a turtle set to zero for 2 ticks rather than one. It's a bit of a work-around hack, but it still gets the idea across pretty well, especially with the heat map to show diffusion values.

Model Output: The 'Collaborative Diffusion Demo' model does a good job of conveying the emergent behavior behind collaborative diffusion. There is a heat map to show diffusion values so users can visually see where the ghosts turn next.

I've implemented some of the Pacman code. Now I just need to work out the bugs- namely, fix the go-home capability so that the Pacman searches for home via collaborative diffusion, and make the frightened ghosts run away from the Pacman. As of now the only part that works is that the ghosts follow the Pacman using the diffusion scent (the collaborative diffusion versions of scared ghosts and ghosts returning home is buggy). If all else fails, I may just have the only collaborative diffusion implementation for Pacman be for the ghosts looking for the Pacman, and just have the 'scared' and 'dead' behaviors remain the same so I can focus on the HubNet model.

Questions: One potential issue is that using collaborative diffusion is too effective- that is, the ghosts are too smart and surround the pacman pretty much as soon as the scent gets to them. Should that be a concern, or should I just have it as an example of how effective collaborative diffusion is. As a teaching tool, it works really well, but as a game it's not really meant to be played (or at least played with the intention of doing well).

Next Steps: Get Pacman working, do the hubnet model, write the paper and student/teacher guides, and make the poster. That is, finish the project.