Today: Building Agents

- Project Progress
- Project Deadlines
- How To do search
Project Deadline

- March 2!
- Turn in Project and Report
  - Both on Mac floppy, or
  - Email Stuffed version of both to
    - ralex@cs.colorado.edu and
    - Timothy.Greenfield@Colorado.EDU
Report

- 3 - 5 pages containing
- Introduction: what is your project about?
- Mini tutorial: how to use your project
  - Which buttons to press, where to click...
- Where is the AI?
  - What AI techniques did you use
    - Search
    - Heuristics
- What did you learn?
  - How did you initially conceptualize the problem
  - Did your solution change over time?
- Include screen dumps
How To: spread signals probabilistically

- Example: Virus Model
- Virus travels with defined probability from one person to another
How to spread objects: shooting

- Used in Wumpus world
- Propelling agents through space
  - Discrete: projectile
  - Continuous: beam
How to spread continuous values: Diffusion

- \[ \text{Value} := \frac{\text{value[left]} + \text{value[right]} + \text{value[up]} + \text{value[down]}}{4} \]

- Examples
  - Temperature
  - Voltage
  - Presence
Examples of Diffusion

- Electric Diffusion
- Electric Ink
- Heat Diffusion
Diffusion and Hill Climbing

- The presence of an agent can be diffused through space allowing other agents to track agent via hill climbing
- The landscape can be shaped to provide navigation clues
Asymmetric Diffusion

- Diffusion coefficients representing asymmetric diffusion can be introduced to model...
  - Water flow (El Nîno)
  - Wind (Sustainopolis)
- Value := \( \frac{1}{n} \sum u_i \times \text{value}_i \)
Guided Flow

- Use connectivity to create connected pieces
- Connectivity can be used to implement guided flow
  - Water pipes
  - Wires
  - Paths and roads
Examples

- Pac Man
- Sustainopolis
Command Extensions

- Download commands from web site
  - Hill-climbing-commands.hqx
    http://www.cs.colorado.edu/~l3d/systems/agentsheets/ai-course/Hill-climbing-commands.hqx
  - Tracking-Commands.hqx
    http://www.cs.colorado.edu/~l3d/systems/agentsheets/ai-course/Tracking-Commands.hqx

- Put files into your project folder
Todo

- Work on projects
- Outline report