Motivation: Creating a game that is fun and teaches the basics of biology and innate immunology.

Problems:
- Game designers and computer scientists have to think outside of traditional game design.
  - Environment
  - Characters
  - Gaming Objectives
Solution Proposed: Work with a research team had expertise in various areas
- Biology
- Immunology
- Pedagogy
- Game design
- Learning science
# Literature Review

## Evaluations

<table>
<thead>
<tr>
<th>Learning Objectives</th>
<th>Game Design/Play</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>The student will be able to comprehend the basic strategies of major pathogens.</td>
<td>Stylized, but accurate, behaviors of a variety of bacteria, viruses, and toxins; simple rules govern their behavior</td>
</tr>
<tr>
<td>The student will be able to identify and understand the role of key components of the immune system</td>
<td>Stylized, but accurate, behaviors of macrophages, neutrophils, mast cells, NK cells, and T and B cells, together with key signaling proteins; simple rules govern their behavior.</td>
</tr>
<tr>
<td><strong>Innate Immunity</strong></td>
<td></td>
</tr>
<tr>
<td>The student will comprehend the various stages of cell development (such as maturation and activation).</td>
<td>The player can take control of specific characters (such as macrophage cells) that follow/leave protein trails and learn to navigate from the blood vessel through the tissue to the site of infection.</td>
</tr>
</tbody>
</table>
Contributions

- Addresses the problem of building serious games
  - How to build serious games that is fun and educational
  - The importance of integrating numerous ideas
Completion of the Cube Applet
Step 1: Drawing the cube in canvas format
Week Workload

Step 2: Designing the GUI
Step 3: Combining the Two
Step 4: Adding the functions to the Java Swing Components

- Initialize the Components and Set the Bounds for the Canvas
  - Paint Function
  - Render Cube
    - Draws the cube
    - Binds the texture
    - Controls the Scale
  - Rotate Cube
    - Left and Right Rotation
    - Yaw, Pitch, and Roll
  - Set Light Position
    - Controls the position and color of the light
  - Make Texture
    - Creates the texture for the cube
Week Workload

Step 5: The Final Product
Problems

- Researching the topic
- Running the applet on the Mac machines
Lessons Learned

- More applet applications
- Java swing components
- Lighting
- Texture
- Animation
Next Week....

- **Mini assignment #4**
  - Jasamine: Graphics for the shapes
  - Hannah: Drag and Drop Methods

- Start on the Dance Tool project
References

*NetBeans: Introduction to GUI Building*
http://www.netbeans.org/kb/60/java/gui-functionality.html.
May 28, 2008.

*OpenGL Apron Tutorials: The Rotating Cube*
May 29, 2008

KELLY, HENRY, HOWELL, KAY, etc. *HOW TO BUILD SERIOUS GAMES*. Austin, TX, Excape Hatch Entertainment.
Any Questions?

Jasamine Jackson
Mentor: Dr. Barnes
CRA DMP 2008
June 5, 2008