Name of Project (+ URL):

The Edge Between Worlds

http://evilempire.forumup.com (in the Computer Graphics -> COMP471 section)

People and Roles:

Vijitha Iyadurai:	4890248	Void replacement
Jenny (Muoi) Tran:	4680138	Research, materials, and installation
Erik Blair:	5582423	After-image development

What is it?

The main purpose of the project is to add after-images in real time video. After-images, meaning animated characters to replace people when their pattern of movement changes. For example: when someone stops or turns, a character will appear to continue the movements that were expected of that person. Any after-image will eventually fade away.

The secondary purpose of the project is to fill in voids. In other words, the project will locate empty spaces and fill them with characters acting independently of the real world. When people fill those spaces, these characters fade away.

What is the project asking or exploring? Why is it an interesting COMP 471 project?

The project mainly explores motion capture using jitter, and how to locate empty spaces. It also explores how to precisely capture motions and map it to characters.

One of the most interesting points is having the motion of a person captured and applying it to a character. Another is that it adds characters to the real world in lifelike situations. Not only that, this project provides a basis for replacing people in live video with almost anything, in this case replacing them with characters. It is interesting for this course because the characters being added come from computer graphics, specifically from games (a major application for computer graphics). Moreover, this project provides the opportunity to learn how to merge real time video with computer graphics.

What is the technical interest?

As mentioned previously, the technical interest involves identifying "empty" spaces and mapping captured movement to the movement of characters.

Explain in mathematical terms, the techniques of digital image / video processing that are being exercised in your application.

Although the techniques have not yet been finalized, the project will focus on tracking people in the field of view. For the void replacement task, the project must be able to distinguish between people (both moving and stationary) and stationary background objects. For the after-image task, motion tracking will be used to follow a person and predict where they will move.

What is the functional, aesthetic, or symbolic significance of your application? How does it engage the human participant in live interaction?

It's interesting because game characters appear in a realistic situation, doing what people would do. Also, it's aesthetically interesting because it's not common to see game characters being mixed into real situations.

Milestones / Timetable:

Week 1

- Find game video files
- Research how to extract game characters from video
- Convert video file format

Week 2

- Get familiar with motion tracking and jit.change
- Simple patch of motion tracking from video

Week 3

- Identifying and locating empty spaces in live video

- Integrate characters into output (for both purposes)

Week 4

- Testing and modifying

Week 5

- Final installation and testing

Deliverables:

- motion tracking patch
- empty spot locating patch
- character integration into above patches

Resources needed:

- camera
- big monitor
- game video files
- video file converting software

References:

- "The Edge of Real Life"

  (http://www.youtube.com/watch?v=UBAoFIBrqbU&eurl)

Diagram:

EV Lobby First Floor

Camera

Big screen

Main Entrance