



Les oiseaux de nuit - Jean-Marc Gauthier 2002
Installation urbaine interactive - realite virtuelle + intelligence artificielle -
controllee par telephones portables.

Title:

Beautiful days in Paradise – Journal de la fabrication des Oiseaux de Nuit

Les textes ci-dessous sont les notes prises durant phases de production des “Oiseaux de Nuit”, en 2002, a NYC. Les textes ont ete ecrits en francais ou en anglais.

Par ou et par quoi commencer ? – May 2002

Après un certain nombre de projets, on commence a trouver des themes recurents entre differences et repetition.

The medieval monk who contemplates the fire ravaging the books of the library of his monastery understands that he is about to start something new without any help from the books. I feel sometimes like this monk who is forced to move away from the old manuscripts and to rediscover the evidence of his shadow on the ground. An ephemeral

shaded area helping him to define his presence before any new space is built again. I need to undo something or to let go in order to build a new space.

Since I am always looking to reuse spaces that worked really well in previous projects, I tend to spend time destroying previous projects to delete all storyline or reference to anything that would distract from the seed of space that holds the project together. I need to prune the project from everything that is not contained into a simple melody of space, into a basic geometry of elements. I can't wait to reinject the seed in the new project and to build freely again.

Where can I find a seed of space, how do I know that it's the right one. I find them recently in dreams where spaces seem to exist before the story is being told. I start building virtual cameras from my dreams; cameras that can understand the players thoughts and zoom in some parts of the world.

L'architecture de la scene interactive – June 2002

Je tatonne du cote de la scenographie et de l'écriture. J'essaye de comprendre cette rue que je voudrais mettre en espace.

Expressionist movies from the 1920's, have old streets with buildings that undulate like the air moving inside a musical instrument. I remember a german movie from that period where buildings had huge bellies extending above the street. The fantastic movies have a way to frame buildings the same way we look at people and notice slight deformations that bring expression to a face like a new way to look at a facade or a street. I am interest to see how the expressionist architecture can "blur the lines" between a built structure and the expression of a character.

Unfortunately, the 3-D modeling tools are not yet spontaneous, physical, tactile and offering the feeling of breaking charcoal on paper, scrubbing oil paint on a canvas or kneading clay with the fingers. The mouse can't replace the pressure of fingers holding a pencil or pushing clay. When drawing a character with charcoal or graphite, the first lines are fast intuitive, spontaneous and precise. When more lines are added to the drawing, too much black threatens to ruin the equilibrium between the white paper and the structure of the forms. As the focus and concentration starts to blur, and the hand becomes more automatic. Do you experience the same thing while sculpting with polygons ? Although the preparation of a virtual set involves the same steps as designing with clay and paper, the time for creativity is a bit different in the digital world.

Notes sur l'architecture d'une scene virtuelle – July 2002

Ces notes permettent de suivre l'evolution des relations en train d'etre crees entre les elements statiques et dynamiques.

I focus on relationships between 3D objects, characters, cameras, and environment with an emphasis on the quality and fluidity of the viewer's experience and the optimization of the scene to display high resolution graphics. I work on the interactive architecture of the

project programming relationships between interactive characters and 3D dummy objects (to be soon replaced with the 3D models that you work on).

OBJECTS

Objects like for example the architecture are fixed or movable, for example on the market, this includes things like vases, chairs and any other non-character entity that might move after the scene is started. All objects are treated as obstacles which means that the camera collides with objects and does not walk through them.

CHARACTERS

Characters are being modeled from the illustrations of Hopper's book. I need more info about the kind of diversity of population that existed in New York City in the forties. I spent time defining the characters behaviors since I want them to look natural as they move through the architecture.

Interactive characters acknowledge the presence of the viewer by swaying, shifting and turning around as the camera moves through the scene. I use a group of self determined characters who can find their own path through the Agora. They meet and walk together and they don't collide with objects. People looking at the scene for a long time will be able to follow constantly evolving situations controlled by artificial intelligence.

Although characters are controlled by the viewer's keyboard, they return to their own artificial intelligence when left unattended. Characters use a set of gestures that we can blend together. Primary Animations control the entire body. Secondary Animations only move on a part of the body. Basic animations like walking forward, backward or turning left and right are assigned the standard keyboard control. Other animations can be assigned their own custom messages to be passed on command.

CAMERAS

I created a first person camera and a following camera called also "over the shoulder camera". The cameras moves like characters and displays the world as seen by a character.

The camera has two modes, user-controlled and automated. In the user-controlled mode the numeric keypad can be used to navigate the camera around the world. The keys 4, 6, 7 & 9 rotate the camera left, right, down and up, respectively. The keys 8, 2, 1 & 3 move the camera forwards, backwards, to the left and to the right, respectively. If there is no keyboard or mouse activity after a period of time the camera goes into automated mode until new user activity is detected. In automated mode the camera follows characters that pass by occasionally switching characters to move about the world. The camera constraints can be adjusted to determine

how quickly the camera follow a character and how it takes its steps when under user control.

ENVIRONMENT

Optimization of the scene - The agora is divided in tiles controlled by a portal system. At playback, the software selects to load the sections of the agora directly included in the field of view of the camera. A second level of optimization is provided with Level of detail which can load objects at various resolution depending on their distance from the camera.

Distant objects are made of billboards with pictures, for example a far away column will be a polygon with a picture of a 3D column.

Mid distance objects are crude 3D models with high resolution texture, for example a column at mid distance will be a cylinder with a detailed texture, Close objects are high resolution models with high resolution texture.

We plan also to use Mesh Reduction which can literally melt down 3D objects as the camera moves away from them.

SUN - The sun is a point light that travels across a curve. The time it takes for the sun to complete a cycle can be set in the Sun Script. The sun's cycle is grossly inaccurate since it moves East to West and then West to East. However, this solution ensures that there is no sudden change in the lighting that would detract from the realism of the scene. The sun's curve simply serves to cast lighting and shadow changes on the scene.

FOG - The Environment Script uses the Fog behavior to simulate dust over an extended distance. It also serves to diminish the activating caused by the Level Of Detail mesh reduction.

INPUT DEVICES

Although keyboard inputs are used to test the demos, we would like to move to other inputs like wireless phones, cellular phones or PDAs which people will use to interact with a permanent installation in a museum, inside a classroom or in the street.

Creer de nouveaux comportement – August 2002

Le projet est presque totalement maitrise. Il est temps de documenter ce qui sera reutilise dans d'autres types de projets. Les Oiseaux de Nuit a permis de perfectioner de nouvelles camera et un systeme relationnel entre acteurs interactifs.

New camera's behaviors

Camera Constraints - This behavior keeps the 3D Frame to which it was applied on the ground and suspends the active camera directly above that frame. It also contains a behavior to simulate a walking motion that raises and lowers the height of the camera based on distance traveled.

Camera Slider - A combination of a Layer Slider to keep the camera inside the environment and an Object Slider to avoid

obstacles. A Layer Slider could be used instead of the Object Slider to save CPU but the collision detection would not be as good.

Camera Follows Character - Apply this behavior to a camera's 3D frame to get the camera to follow members of the specified group. The behavior follows the closest member of the group first and will then follow anyone who comes closer. You can adjust the frequency with which the camera randomly changes targets.

New character's behaviors

Notice Me (action) - This behavior should be activated when one character realizes that it has bumped into another character. The behavior sends a message to another character notifying it that it has been bumped.

Notice You (reaction) - This behavior controls how a character responds to being bumped. Possible reactions are a head turning, a step forward or a piece of dialogue.

Ray Deflection Test - This behavior calculates a deflection angle by firing two adjacent Ray Intersections. The result is a vector.

L'installation:

Dans la présentation des oiseaux de Nuit j'utilise l'espace virtuel pour revisiter et redéfinir des media interactifs existants – l'animation en 3D, la réalité virtuelle, l'intelligence artificielle, les jeux vidéos. Cette recherche présente un espace vu par des caméras virtuelles interactives. La scène virtuelle va au-delà d'une représentation en 3D conventionnelle pour créer quelque chose d'intelligent et de vivant. C'est un peu comme si on essayait non seulement transposer des media existants mais aussi d'inventer de nouveaux modes de représentation. Ne pas seulement essayer de reprendre une vieille voix en la rajeunissant mais chercher à lui donner une voix nouvelle. Cette collection d'explorations spatiales en 3D est devenue un atelier qui attire des étudiants d'horizons différents venus étudier les techniques de réalité virtuelle pour créer rapidement des prototypes d'idées et de concepts artistiques. La classe de Jean-Marc Gauthier à Interactive Telecommunications Program – Tisch School of the Arts – New York University (www.itp.nyu.edu) permet à des étudiants de créer des environnements interactifs en 3D utilisant le texte, le son, des graphismes, des géométries, sculptures, architectures et personnages animés.

Les Oiseaux de Nuit est une installation 3D en temps réel qui plonge plusieurs joueurs dans un monde virtuel qui semble étrangement réel aux rues de New York des années quarante. Les scènes sont inspirées des tableaux de Edward Hopper et des décors de film de cette époque.

Le monde des Oiseaux de Nuit ressemble peu à notre vie quotidienne, il nous transporte à l'intérieur d'une peinture en 3D, à l'intérieur du diner où les deux derniers clients partagent leurs histoires avec Joe le serveur; dehors la rue, les passants, New York dans le lointain. Chaque élément de la scène a une personnalité propre et à certains moments ces éléments s'animent et réagissent.

Les Oiseaux de Nuit a ete cree pour un public d'adolescents et d'adultes interesses par une histoire interactive non violente. En l'absence de participation des joueurs, les acteurs virtuels suivent des actions programmees par l'intelligence artificielle du monde virtuel

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