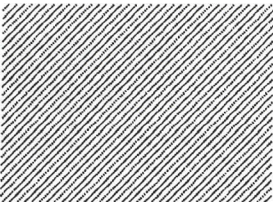
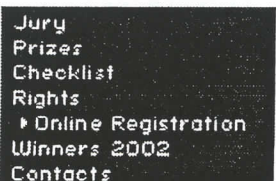


## Prix Ars Electronica - International Competition of Cyberarts 2003 → Interactive Art



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### Interactive Kunst

Recreating  
Ourselves:  
ZENetic  
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# Recreating Ourselves: ZENetic Computer

Naoko Tosa

Center for Advanced Visual Studies,  
Massachusetts Institute of Technology  
JST/ATR

Seigo Matsuoka

Editorial Engineering Laboratory  
Tezukayama Gakuin University

## 1. Description of artistic concept of ZENetic Computer

We tried to develop an interactive system that could help us recreate ourselves by adopting Buddhist principles, Asian philosophy, and traditional Japanese culture through the inspirational media of ink painting, kimono and haiku. Recreating ourselves means our daily self meeting our hidden self through wondering something or, in other words, our consciousness and unconsciousness melding in complete harmony. It is difficult to achieve this experience through traditional logic-based interaction. We succeeded in reaching this goal by making the above types of images the target of scientific computing. We applied the following five processes to develop a system that could give users the experience of recreating ourselves.

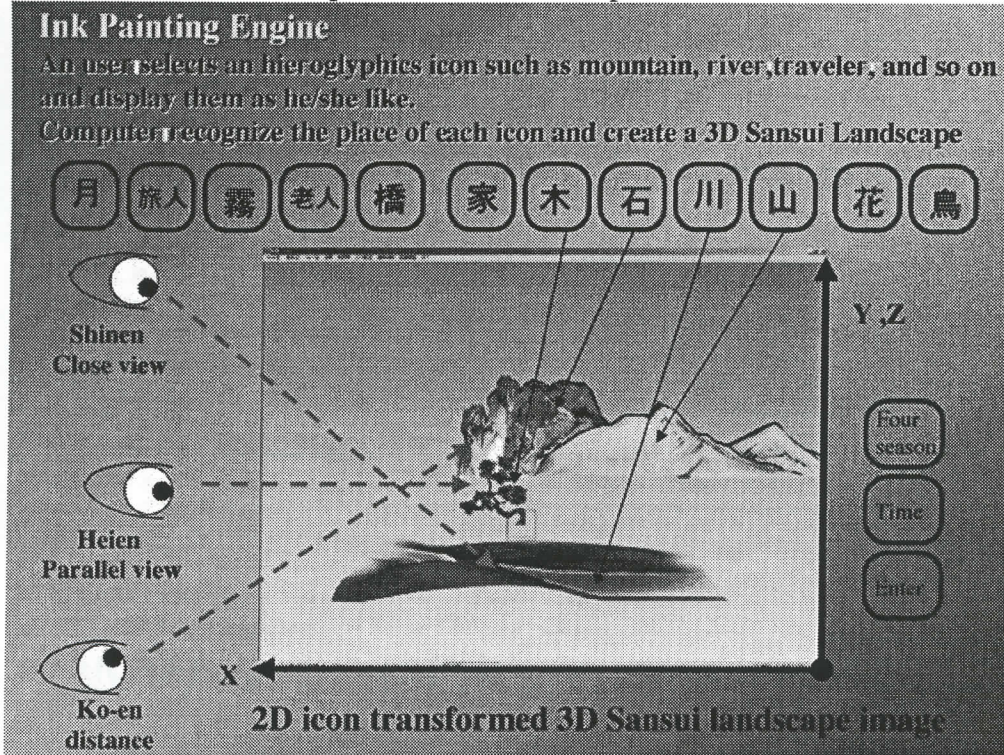
- 1) We created a virtual world through images of the Asian *sansui* ink-painting world, which are difficult to experience in daily life. This makes it possible to awake of our daily consciousness.
- 2) In the virtual world, users enter a story that shakes their consciousness. This is not a complete story, such as those in the movies or novels, but fragments of short stories. Experiencing these stories makes users uneasy and invokes their unconscious desire to emergent a whole story by linking these fragments of stories.
- 3) In each of these inchoate stories, the interactions invoke Zen dialogues or Haiku by allegorical communication. The users are asked questions that do not have correct answers. They are forced to deal with these ambiguous provocations and thus they unconsciously try to answer the questions. This unconscious effort gives the users the direction to find from one short story to another and to link them.
- 4) Both the questions the user poses to an object of this interactive system and the unconsciousness exerted in trying to link the fragmentary stories decrease the distance between our daily self and our hidden self. This is called MA-Interaction.
- 5) Finally, the users have a dialogue with a "bull," which has frequently been used as a metaphor of our hidden self in Zen Buddhism. Through this dialogue, they have a virtual experience of unifying their daily self and their recreating self.



## 2. Technical realization

### 1) 3D *Sunsui* (ink-painting) Engine

We have developed a 3D interactive ink-painting engine by utilizing on original perspective called *sanen*, where one picture has three viewpoints.



Depending on how users draw an ink-painting, the engine classifies their invisible personality by using a neural network and utilizing the Buddhist concept of *goun*, which says that five basic spirits and materials make up our world.

The nature of *Goun* can be understood as embodying the following concepts.

- a) 色 Shiki is how the nature and materials should exist.
- b) 受 Jyu is the intuitive impression
- c) 想 So is the perceived image
- d) 行 Gyo is the process of mind that activates your behavior.
- e) 識 Shiki is the deep mind process that lies behind all of the above processes



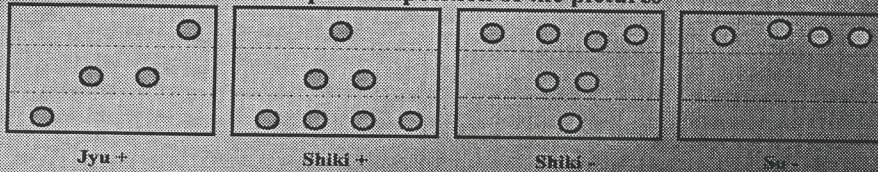
## Mechanism of the engine classifies invisible personality for user

### 1) Personal subconscious information from Ink Painting by NN

Input — 12 Elements x 3 position = 36 unit  
Output — S1 ( Goun Information ) One unit

2) Teaching data of NN  
10 kinds of +/- Goun

Example Composition of the pictures



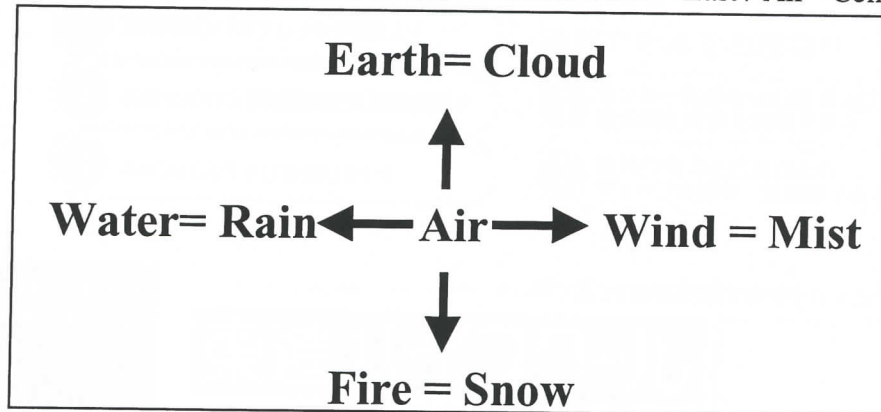
Then, the users can enter their own 3D ink-painting picture. Depending on each user's personality, various stories are generated.

### 2) Story-teller generated to MA-Interaction by algorithm based on chaos theory

This is a symbol and allegorical interaction model based on Buddhism. The environmental information of a story, such as scenery or weather, is used for *godai*, which encompasses all elements of structure: water, fire, wind, sky, and earth.

"*Godai*"

Earth = North / Water = West / Fire = South / Wind = East / Air = Center





Context generation changes depending on the user's *goun* information from the Zen Buddhism interaction. The MA-Interaction wakes users from the hodgepodge of individual fragmentary stories and compels them to make a unified story with their own imagination.

### Mechanism of Generate for Story by Chaos algorithm

#### 1) Initial state of personal subconscious information

Goun +/- , Initial value  $St(0)$

State  $St(1)$  generate from ZEN Communication Interaction by  $Mat(x)$

State  $St(2)$  = Next Target generated from Interaction result

ZEN Master generated from Chaos 1

User agent generated from Chaos 2

Compromise point generate from Chaos 3

$St(1) = Mat(ZEN\ Koan\ 1) \times St(0)$

$St(2) = Mat(ZEN\ Koan\ 2) \times St(1)$

.

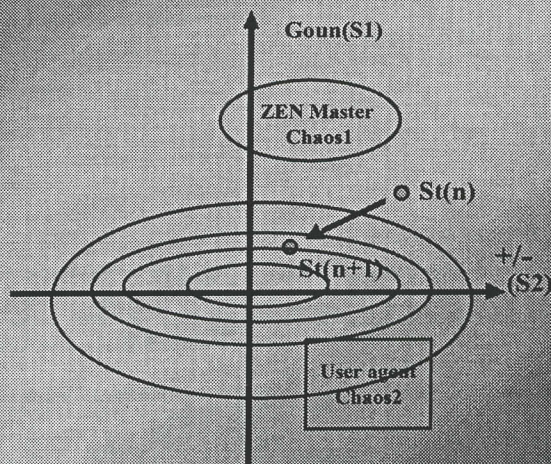
Matrix =  $F(a,b)$

#### 2) State of Parameter $St(I) = (S1(I), S2(I))$

$\Psi(S1, S2)$  is two-dimensiond parameter (Goun, +/-)

$\Psi(S1, S2)$  renewed by ZEN Communication Interaction

$\Psi(S1(n+1), S2(n+1)) \leftarrow F(S1(n), S2(n)) = F(a,b)$





MA-Interaction is technically generated from chaos algorithm.

First, depending on the user's invisible personality data from Goun, context is generated by ZEN communication.

Then, the St(1) point is decided from user interaction during ZEN communication

The St(2) point (next target) is decided from the user interaction result.

As user data move from St(1) to St(2), Chaos2 (User agent) tries to synchronize with the user data. But Chaos1 (ZEN Master) moves to attack the user data.

If Chaos2 can synchronize with the user data, the user data can reach the next target.

But, if it can not, the next target becomes a compromise point.

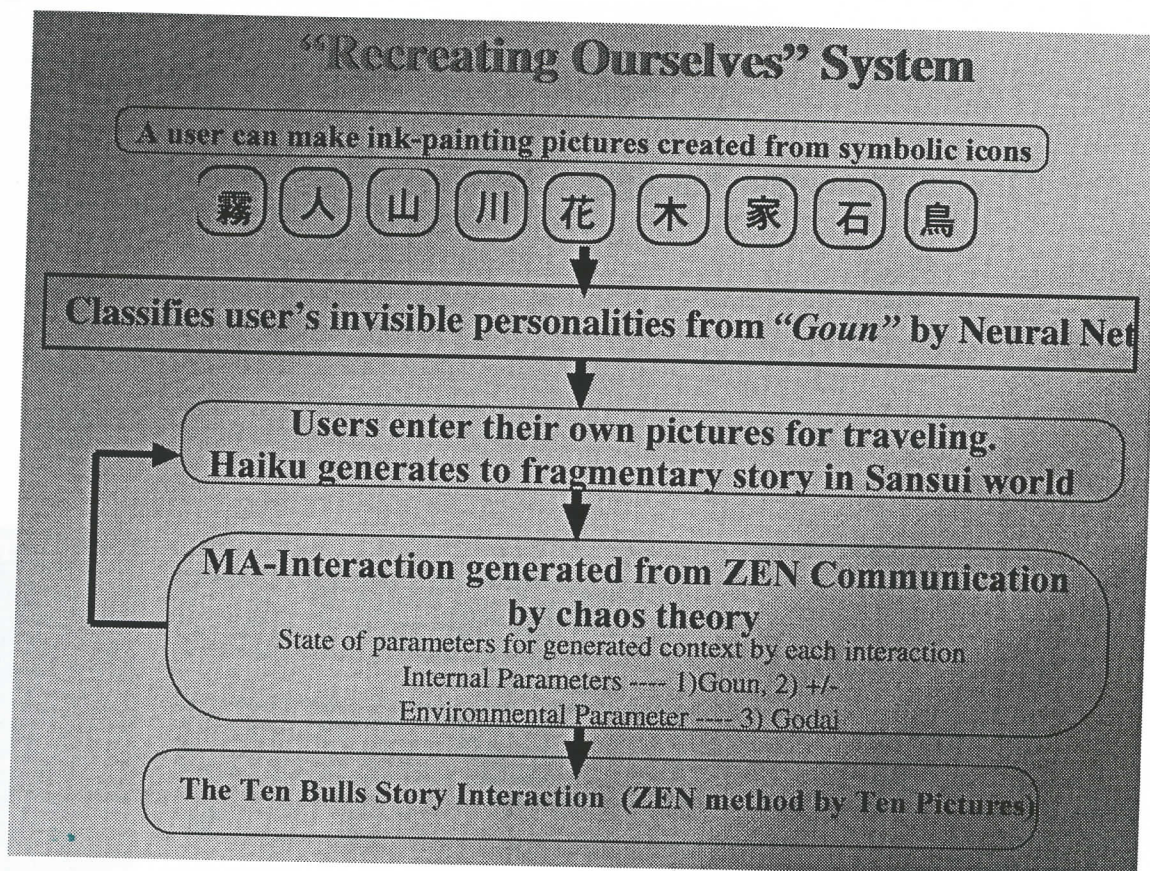
Oh no This is our daily behavior. We should awaken to consciousness.

The compromise point also generates chaos.

When the user data have too much success in reaching the next target, the ZEN Master Chaos will become stronger to attack the user data!

Furthermore, the ink-painting engine made by computer graphics can be virtually integrated with a Rock Garden Interface to enhance the physical reality of the MA-Interaction.

Software Integration is follows.





Hardware Integration is as follows.

