

# Inter-Culture Computing: ZENetic Computer

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## 1. Introduction

People of many different nationalities, cultures, and customs live in the world. With this method of inter-cultural computing we offer a new, personal experience through which people can feel and understand different cultures.[1] This leads to a real understanding of "symbiosis" which is important for peace throughout the world. Through esoteric riddles, ZENetic teases particular cognitive responses from users as reflections of their inner, subliminal consciousness. With stories portrayed in ink painting, haiku, and kimono, ZENetic conveys the rich allegorical interaction of Eastern philosophy.

## 2. Philosophy of the project

We realize inter-culture computing taking ZEN and Japanese culture as examples, giving the user a sense of a different culture that could otherwise only be understood in a logical way. This system bridges the gap among generations, genders, and countries, enabling everyone to have a cross-cultural experience. The user creates a virtual world by manipulating images of Asian ink painting on an intuitive computer display. These images, symbolizing nature and philosophy, differ from our daily experience and awaken us from daily consciousness, giving free reign to subconscious imagination. Based on the users' painting, the system infers his/her consciousness and generates an incomplete story which consists of fragments of short stories. Experiencing these stories makes users feel uneasy and arouses their subconscious desire to construct a whole story from the fragments. The system stimulates interaction through allegorical Zen dialogues or Haiku. The user is asked questions that do not have correct answers and is forced to deal with these ambiguous provocations while subconsciously struggling to answer the questions. The user responds using, for example, a virtual calligraphy brush or rake of a Zen rock garden. Finally, the user has a dialogue with a mythological bull, something frequently used as a metaphor of one's hidden self in Zen Buddhism. Through this dialogue, users experience a unification of their daily and unconscious selves into a unified conscious self.[2]

## 3. Technical Realization

### 3.1 3D Sansui Ink-painting engine

First, the user interacts with a digital 3D ink painting which classifies their intrinsic personality using a neural network. The personality corresponds to a point in a Goun space, where Goun is a Buddhist categorization stating that the world contains five basic spirits and materials. User data is also obtained from future interactions and is used to determine a pseudo-Goun personality which, depending on the user's behavior, may differ from the intrinsic personality. Conversely, the difference between the pseudo-personality and the intrinsic personality will affect the evolving story via a chaos engine.

## 3.2 Storytelling Generated by Chaos Engine

The chaos engine [3] consists of three agents: the User, Target, and Zen Master. Each of these move around in Goun space interdependently. These movements are used to create sounds and images which are experienced by the user and to control the evolution of the story. The User agent's position corresponds to the user's pseudo-personality, and the position of the Target agent corresponds to the user's current pseudo-personality from the latest interaction. The User agent position starts at the intrinsic personality and moves toward the position of the Target agent. However, if there is interference from the Master, it is more difficult for the User to reach the Target: the smaller the distance, the stronger the influence, and the more difficult it is for the User to reach the Target.



Figure 1: ZENetic Computer

## 4. Conclusion and Future work

ZENetic applies aspects of Buddhist philosophy. Our motivation derives from the more than 2,000 years of Buddhist tradition. Interaction between Zen master and pupil, developed to increase understanding of consciousness, provides a rich base for interactive modeling in a field unexplored in the Western scientific tradition. Future work should develop theories that may shed new light on how cultures maybe translated, enabling users from different cultures to understand the deeper significance of the translated culture.

## 5. References

- [1] Tosa, N. Chapter19: *Expression of emotion unconsciousness with art and technology*, iAFFECTIVE MINDS, ELSEVIER, pp. 183-201 (2000)
- [2] Matsuoka, S. *The Sansui thought*, Gogatsu shobo (2003) (In Japanese)
- [3] Liu, Y. Davis, P. *Dual synchronization of chaos*, Physical Review E, 61 pp. R2176-R2179 (2000)