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### Interview with Ranjit Makkuni REVERSING THE DIGITAL DIVIDE

Wednesday 22 January 2003

**Interviewer:** Mark Vanderbeeken, Interaction Design Institute Ivrea

*Ranjit Makkuni is one of the Explorers of Interaction Design Institute Ivrea. He is now visiting the Institute and will be giving a lecture tomorrow. This interview gives those who can't come to the talk the opportunity to know more about who he is, what he has done, and what he will be talking about.*

### **MV: You have quite a unique life story. You are from India, went to work in San Francisco, became involved with pioneering interface development, grew into an interaction designer and are now back in India. Can you tell me a bit more about that?**

RM: I have been involved with interaction design at multiple levels. My undergraduate training was in architecture, a discipline of interaction, with space, the elements, the landscape, be it without computing. My Indian context itself is also relevant in my growth towards interaction design because there is a strong ritual tradition, which values and celebrates the five elements-earth, water, wind, fire and space-which form the vocabulary and substrate of expression in traditional society. Integration and interaction with nature are fundamental. Then I went to Los Angeles to study architecture. There by (happy) accident I got involved with the early age of computer aided design, where the focus was on CAD programmes and representation of designs. Since these were the early days, we were in fact inventing the field of CAD. Then, Xerox PARC hired me into the SmallTalk group, which had a focus on user interfaces. The first notion of user interface came from this group. They invented the GUI (Graphical User Interface) and Windows. In my nearly 18 year career at PARC, I graduated from design to multimedia tools that relate to the body. My unique contribution at PARC was the study of how the hand, the body interacts with both hardware and software. In terms of hardware: I explored why hardware itself cannot become a communication device instead of being just black and beige. Interaction design after all doesn't start on the screen, but much beyond at the hardware level. At the software level, my focus was on the hand gesture? What happened to the individual signature that one would find in a Chinese calligraphic painting, where you could see the brush stroke inside the painting. What happened to all those dimensions, which have been excluded from modern software? So these are the different levels of interaction design that I bring to bear starting from the traditional interaction design with India, architecture, design to CAD, to artefact representation, to body-friendly and hand-friendly software and hardware.

#### PEOPLE



#### **Ranjit Makkuni**

Member of the Institute's  
Explorers' Club  
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#### LECTURE

#### **Ranjit Makkuni**

Culturally Reflective  
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**foundation there. How did you make that decision and what are you working on in India?**

RM: The Sacred World Foundation, as the name implies, is about realising a sacred world. We are documenting the world's sacred traditions through digital media. But there is a larger theme behind this: 20% of the world controls 80%. The 20% defines and produces the technology and the design of the technology for the whole world. The other 80% is situated in a social discourse, in traditional interaction design, but have no control on the forms of expression of the technology. Can you build bridges between the two worlds? Another way to put this would be through the digital divide argument. Can you design for the remaining four billion and can innovation arise from those people? The Sacred World Foundation is trying to develop bridges of understanding because we believe that both sides need each other. It's for the mutual benefit of both to build technology that is integrated with art and culture, and have culture reinforce technology. In the context of developing nations, it's about culturally-reflective, culturally appropriate computing. In the context of modern man, it's about the need for bringing ornament and sensuality back in a world, which would otherwise homogenise its users through black and beige boxes.

**MV: How do you do that?**

RM: The foundation's projects would generally focus on a very highly expressive domain, such as for example Chinese art, the goddess Guanyin or the sacred city of Banaras. These are all domains that are highly rich and force designers to respond to that rich content, provoking better and richer designs. Second, since I am in India, I have the option to include the world's traditional designers in the process itself: craftsmen, artists, painters, musicians, dancers. So you get to get a much richer result. I really believe that these craftsmen are designers. But instead of disenfranchising them, can we just include them in the loop? Our project team's aim is not to creating a mass-produced technology, but rather to make sure that there is sufficient variation, so that the resulting technology is not homogenised and mass-produced.

**MV: Can you give us an example of a project that you have developed with this approach?**

My recent work, the Crossing, is looking at new forms of hardware and mobile devices that unlock the symbols, spaces and interpretations of Banaras. This would be an example of a project in which there was multiple layers of design: from crafts, to metal work, to wood crafts, to paintings, to all the stuff that we do with embedded programming such as in situ embedded audio and graphics, to video, to graphic design, to multimedia design-all of this integrated to create very rich experiences.

**MV: Can you describe the experience? If people walked in, saw the Crossing, what did they see? What did they experience?**

RM: The Crossing project exhibition ran during the era prior to tangible computing and Ubicom [Ubiquitous Computing]. It explored mobility, gesture and what the notion of connection means for a traditional society. Traditional societies gather around pilgrimage spots. Banaras is such a pilgrimage spot where large gatherings of people cross over into the world of transformation. Whereas a cell phone or digital technology are modern forms of connection, Banaras stands for the traditional connection. How do you intersect the two forms of connection to create a new form of art? When you enter the Crossing exhibit, you would see these two themes. You have innovative interfaces using gesture, hand-

traditional connection: pilgrimage, symbols, interaction with the elements, how one integrates with nature. Banaras as you know is a place that many Indians consider the ultimate destination, where you cross over from the rounds of rebirth so that you never come back. It has a transcendental quality. The exhibit is divided into themes relating to the sacred city, from the good life on the streets, the joy of living and happiness, to issues of transcendence. These themes are expressed through traditional cultural forms embedded with technology, designed with craftsmen. The designs will unlock the content.

**MV: So people saw interactive displays shaped within a traditional ritualistic form?**

RM: That's right. Our forms were derived from time-tested forms and ancient visions. When we later analysed them, we realised that they were actually highly contemporary. The form of the egg for instance, is an Indian symbol of the cosmic primal state of the cosmos, but is also derived from the form of the concavity created by clasped hands. The pot is a symbol of the goddess Ganges, and represents fertility, fecundity. It is also a cosmic primal form, but if you hold it, it communicates: certain things will happen to you, you feel compassionate. There is an iconography in this connection to the forms. We are trying to make sure that modern man has a connection to these primal forms, so that you remember eco-consciousness, as the goddess is a personification of nature, for example. Holding the pot is a way to remember both the fertility of nature but also a contemporary element. This happens at both the content level as well as the form level.

**MV: Was the exhibition targeted towards the more urban Indian who was perhaps disconnected from these ritualistic traditions or towards the people who participate in these traditions but are not very well in touch with technological possibilities that could be relevant for them?**

RM: Actually, it is both. Our exhibitions were in urban cities. And urban cities by default had the advantage of allowing us to disseminate the value of tradition to people with modern sensibilities. We also had workshops with village children and underprivileged children, children from the slums. There we realised that these interfaces without keyboards, mice, multiple overlapping windows, and cut, copy and paste commands, are actually quite natural for people to relate to. People found it much easier to interact with traditional cultural forms with embedded computation, tactility and tangibility, than with keyboard and mouse. In hindsight, we reached out to both audiences, although we set out to educate the urban audience about mythology. We realised that these are forms, which can bypass any form of contemporary computing access. Our work did, in that sense, achieve a culturally reflective quality and this may be the way for people who are illiterate with respect to English and to understanding files and folders on the screen, to easily access the magic of computing.

**MV: In a workshop currently going on at the Institute, second-year students have been asked to develop a personal communication device for somebody they know. The design is therefore highly personal, yet based on the underlying thinking that if you develop something for a very specific person-a friend, a family member-some of the lessons learnt can be transferable to a large group of people. And in fact, that is indeed the case. All the projects have relevance for a larger context. It strikes me that your approach is somewhat similar. You develop culturally relevant technological devices for a**



**something larger and to transfer something back, which you call the reversing of the digital divide. Can you tell us something more about this approach? Can you give us some examples of how this approach could be relevant for an audience or a group of people outside of that specific cultural tradition?**

RM: I think there are two questions here. The first question is what we call in situ research: do we do research in the abstract or do we do research based on a concrete situation? Because of my personality and my past track record, doing an in situ research-that means having a focused theme with real goals, real applications and real aesthetics-allowed us to study a larger cross-section of the problem. Rather than going at it abstract and trying to solve all the cases and then trying to figure out the instance, I'd rather work with the instance and going to the class.

**MV: Bottom-up.**

RM: Yes, bottom-up. One can argue both ways. But in situ research has worked very well for me. But there is also a larger question. This exhibition and the workshop, made us realise how important it is that we do not accidentally dump Silicon Valley concepts onto developing nations. That is the digital divide question. If you can create a methodology, by which cultures can create their own forms and their own operating systems, then that will be very important towards healing the digital divide. I think you reinforce the digital divide by forcing people to think about Silicon Valley concepts and black and beige boxes. If the net goal is communication, usability, pleasantness, then you got to make sure that users get a say in the design of the technology that's being thrust upon them.

**MV: So one approach you take is concrete: working on alternatives to the Graphical User Interface that are more intuitive for non-experienced users like there are all over the world-not only in India by the way. The other one is more strategic: developing a methodology for how you can design culturally relevant technologies.**

RM: In the Crossing project, we communicated the multiple layers of Banaras through tangible computing. I am sure that there is a critical mass in the work that is happening in Ivrea and in MediaLab. There are a lot of people working on tangible computing. Whether it's called pervasive computing or ubicom, it's all tangible work. Now given that there is such a critical mass, why could we not develop a framework to create authoring tools so that more and more people can create applications-a framework to author compositions using such tangible devices. If you were to reflect on the practical experience here in Ivrea and take the results of the very diverse applications of tangible interfaces a bit further, well, maybe there is a revolution waiting to happen here. Like the way personal computing came. Suppose you could figure out a way that you can take the abstraction and hand it to a lot of people, so that everyone can create their tangible application. There is a lot of potential there.

**MV: You are now in Ivrea. I think it is the third time that you are here now. You have seen the evolution in the Institute from, I think, a construction site to the second-year students now developing their theses. What is your impression of the developments going on here and what are you specifically involved with during these few days that you are here?**

RM: I am actually really pleased to see the Institute's vision

the building I guess -software - which is money, but also talent, faculty and research. You mailed me all these beautiful postcards of the research and I was really happy to see such a diverse body of work emerging so quickly. What is more important is that design is driving innovation here in Ivrea. This may be one of the very few institutes where design with a substrate of technology is driving innovation, and this as opposed to the classic situation where computer science driving innovation and where the designer gets called in when there is a problem, for packaging or the last mile of design. Here designers get to do the first mile. Given the right combination of implementers and designers, something great could happen here.

**MV: You are also getting involved with students' work and sharpening their thesis concepts?**

RM: Yes, I am having a lot of fun, talking to the students and looking at some neat ideas, which are emerging. For example in the mid-eighties and nineties we were talking about learning through peripheral participation-some of the work that's been happening at IRL. And it is really touching to see a student build on this to use devices to deliver in situ learning, for example. Or the whole question about creating clouds of information, as mobile devices become GPS friendly. It's really nice to see such ideas come out. Each of these, for example, and there are many more to come, are powerful approaches that have applications beyond just the thesis.

**MV: We have 24 nationalities here at the Institute. And there is a large contingent of Indian students here. We have six Indians, the third largest national body of people here after Italians and Americans. You know several of these students, some that you met before, one you actually worked with. Do you see or feel a specific Indian sensitivity coming through in their thinking or work, or is that not so relevant here in Ivrea?**

RM: There are a lot of things that India could teach you, because it is a nature based traditional society where interaction with the elements is of great importance. Some of these ancient concepts are now being validated by contemporary ecological thinking. That is a default, regardless of whether there are Indian students here or not: we ought to be thinking about the environment, we ought to be thinking about gender issues, we ought to be addressing all these great design needs. This has nothing to do with India. But India certainly can offer, because it's had 2800 years of real tradition dealing with thinking about nature. One example is India's goddess traditions, which is in fact ecology personified so that man's relationship with nature can be celebrated. That is a global issue even though it may have originated in India. Now more specifically about the Indian students: if they were to go back to India, it would be really fantastic if they were to work on developing computing appropriate for India, help traditional communities appropriate concepts of tangible computing and help reverse the digital divide. That way Interaction-Ivrea will have empowered these students to become tangible computing designers, to go back to their communities, and to spin off other designers. And while the Indian students are in Italy, I am sure they carry with them a rich worldview that can contribute to all kinds of design fields.

**MV: What will you talk about tomorrow night?**

RM: Tomorrow night, I think I titled my lecture 'culturally reflective computing' which is looking at developing culturally reflective interfaces for the rest of us, which is those four billion lying across the divide in emerging nations and emerging economies. As computation migrates from developed nations to developing nations, it's very important that



its accessibility and usability. This would be demonstrated primarily through the Crossing project, which is looking at cultural interfaces based on the traditions of Banaras, as well as a secular example showing street art on taxis in Bombay. And if time permits, I will talk about an authoring tool I am developing in a village, precisely dealing with this issue of bringing in tangible computing and the latest IT methodologies and inserting them in a village context so that these communities can appropriate these technologies at an early stage in the cycle of development and leapfrog into innovation.

**MV: People who read this interview on the website and don't belong to this 20%, may feel rather intimidated by the challenge of having to compete with the strong and well-funded technology companies in the developed world. What do you say to them?**

RM: The 20-80 is just for the sake of argument. Really we are all one world. If tools and services and products need to be deployed in these emerging areas, and probably they will, then these has to be designed right. Then let's look at all those classical question: let's not forget our heritage, let's remember nature, earth as a mother, let's respect the woman, let's think about minorities, ecology, recycling, not polluting. Let's learn from Mahatma Gandhi: do we need more, or do we need less to do more? These are my design values, my principles, and they are relevant whether you are in the 20 or in the 80. For modern man especially, given that you are interacting with displays more than you are interacting with people. People spend more time in front of a machine display or a keyboard than they spend with a real person. Don't you need texture, ornamentation, mythologies, or culture? These are the classical issues of our times. They don't belong to India, Peru or Mexico. They belong to the whole world. And they are very critical issues as well. We are all in this world together. If you don't pay attention to them right now, they will definitely surface at some point. It is a zero-sum game. If you delay, it doesn't mean that the issue will go away. These issues are rightful issues and they are critical to the future of design.

**MV: Thank you very much.**

#### **Ranjit's favourites:**

##### **People I draw inspiration from**

1. Louis Kahn, architect
2. Ali Akbar Khan, musician
3. Ludwig van Beethoven, musician
4. Adi Sankara, philosopher
5. Sri Ramakrishna, mystic saint

##### **Favourite books**

1. I don't read books
- 2.
- 3.
- 4.
- 5.

##### **Favourite websites**

1. [Victoria and Albert Museum](#)
2. [Doors of Perception](#)
3. [MIT Media Lab](#)
- 4.