

ISMAR 2010

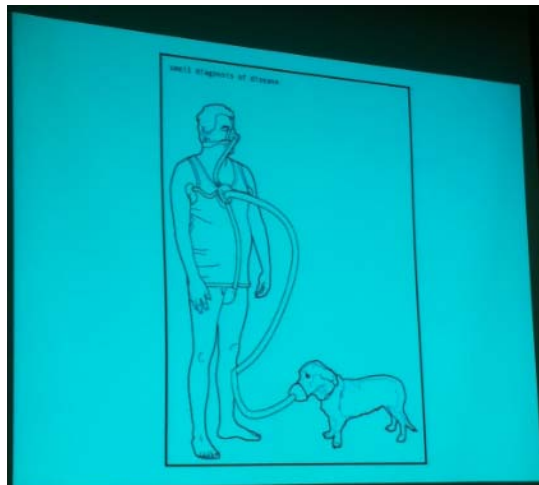
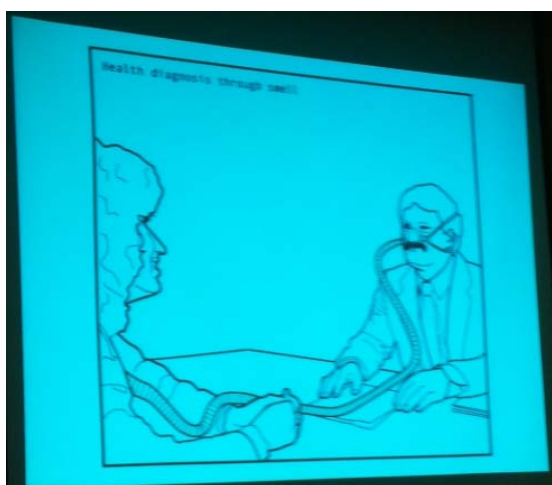
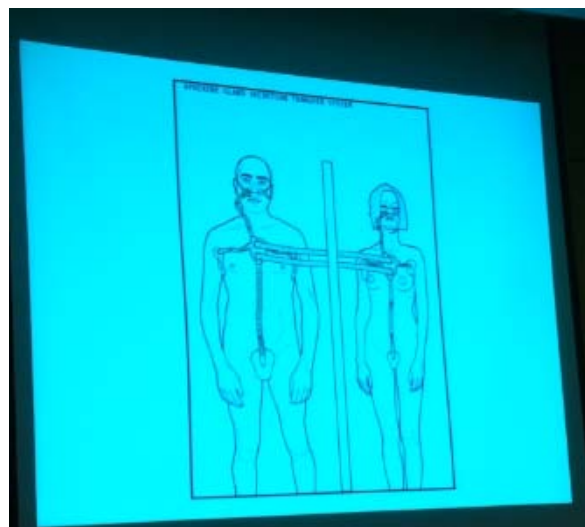
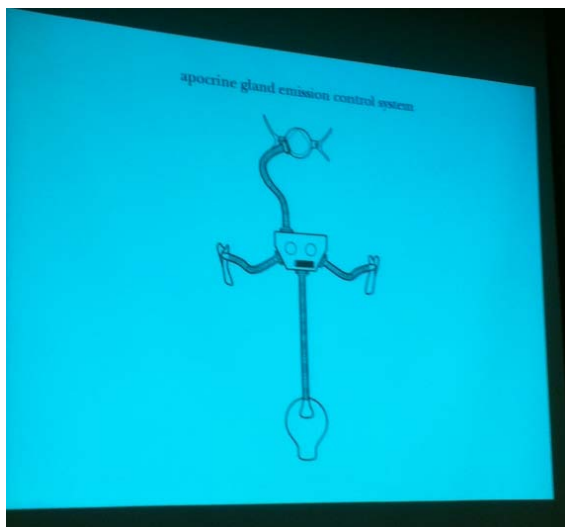
Day 1

I participated in the work about “Designing Devices That Alter Perception”. This workshop was organized by Carson Reynolds and his colleagues from University of Tokyo. In this workshop, research and projects using different sensors and actuators to change human’s perception, are presented. The proceedings of this workshop is in <http://devices-alter.me/10/draft-dap2010.pdf>.

The workshop started with the keynote speech given by James Auger (<http://www.auger-loizeau.com/>). He mentioned several interesting points about human perception, specially smell:

1. Instead of enhancement, it might be a torture to augment human perception.
2. Amazonian Desana tribe has deep culture of smell (Smell & Taste Team might be interested on this)
3. In some country, dogs are trained to smell the cancer cell.

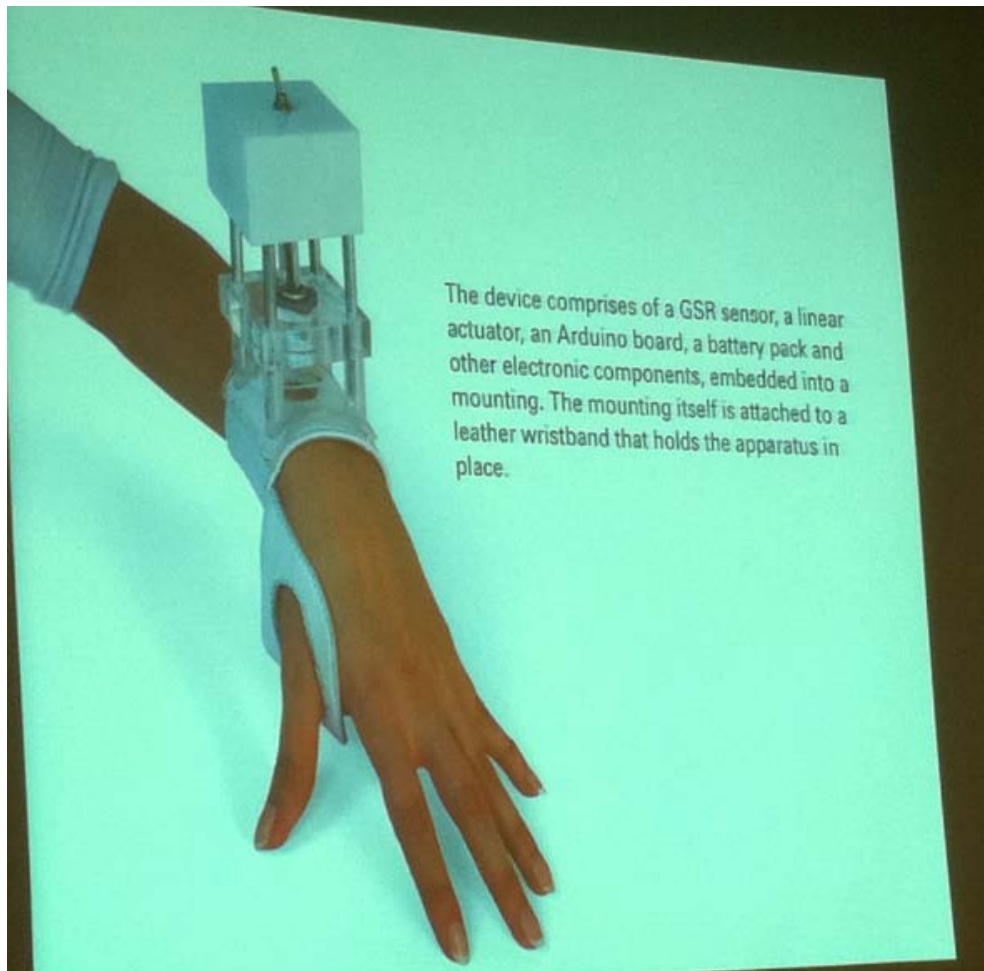
And here are some of the photos he showed about his project SMELL+



During the paper presentation, several interesting projects were introduced.

AAA – Automatic Anchoring Armour, Instant Therapy for Nervous People

Automatic Anchoring Armour, a wearable device synthesizing bio-feedback and mental conditioning is introduced. It is proposed to trigger positive emotional memories by generating stimuli on human skin. One key question raised to the project is how to evaluation this device. And one interesting point brought up by the audience was that When you name something artwork, you don't need to evaluate it?! (Is that true?)



“tensed up” - a piece of material demonstrates our field of activity

This paper would be interesting for Mili, I think. It introduced a woven textile using electrical energy from its surroundings via influence – by human activity as well as electric fields nearby – and passes it in a comprehensible way to the user. In this project, static electricity is used to make light textile stand and move.



Objects For Our Sick Planet

This was presented by Kianpeng Ong from Multimodel Analysis Lab, NUS. This was about a series of artistic works created in response to the various environmental problems that we face. One of the interesting projects is FLOOD HELMET, which is a wearable display that shows user different sea levels in Singapore if Singapore is covered by the sea in the future. This is to encourage people to fight against the global warming.



Day 2



In the keynote given by Prof Henry Fuchs, he mentioned an interesting article written by Frederick Brooks from University of North Carolina at Chapel Hill, called **What's Real about Virtual Reality** (<http://www.cs.unc.edu/~brooks/WhatsReal.pdf>). This article presents the history of the development of virtual reality and the vision by the researchers in the early day and the state of the art of VR, so it would be a very good reference for our research.

In addition, Prof Henry Fuchs, as one of the famous researchers in the early stage of VR, also gave us some suggestions in the VR research:

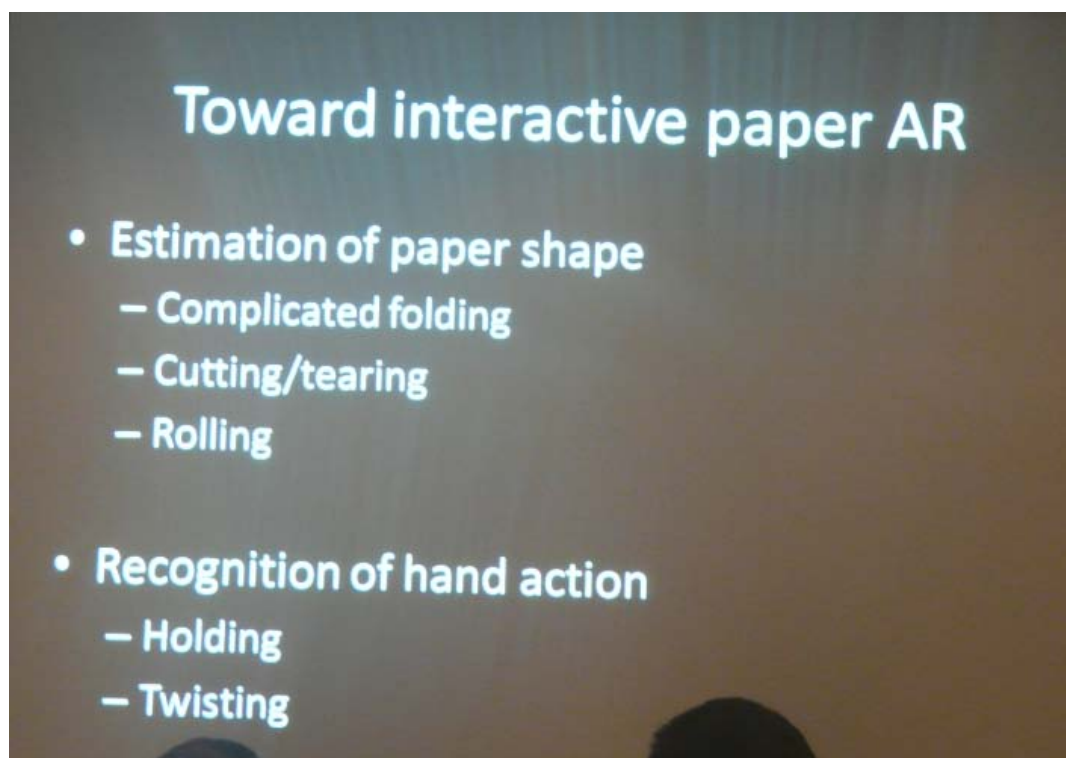
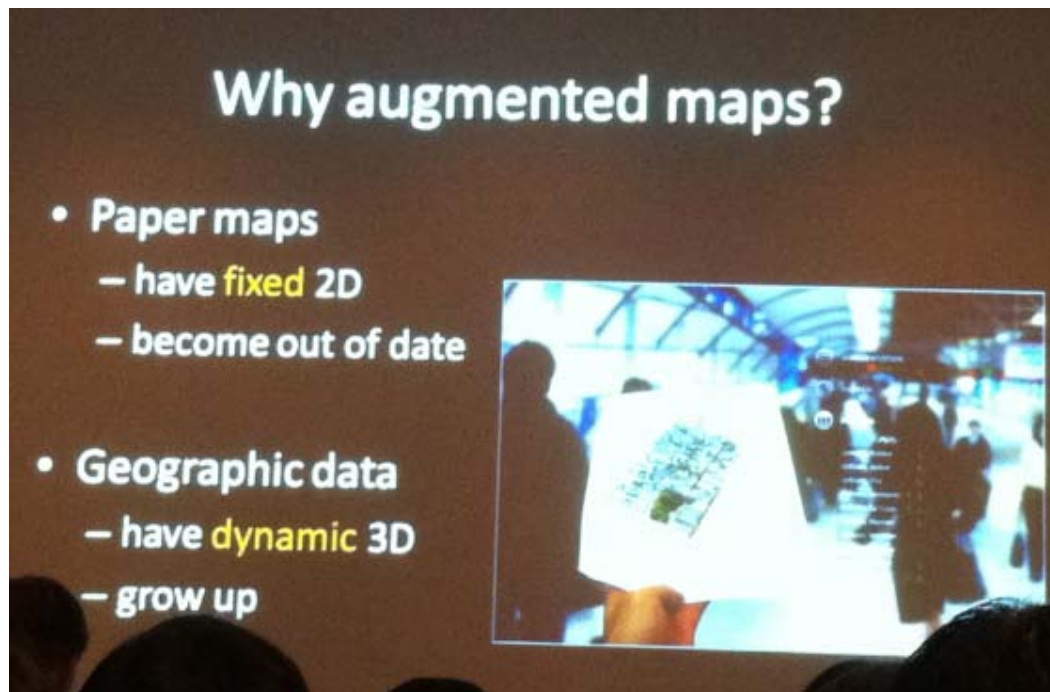
1. Advance one area that's holding back progress: outdoor tracking, automatic scene acquisition...potentially to unleash much progress
2. Find alternative to classical immersive AR: augment the real world in other ways such as projecting on physical objects.
3. Combine multiple modules, and solve them together instead of optimizing only one. For example,
 - (a) HMD and Rendering correct HMD optical distortions in the rendering (FakeSpace Labs Wide5 & M.Mine, Disney)
 - (b) Tracking and interaction: Virtual Patient in HMD (UNC)
4. Ride some rapidly advancing technology
5. Stay poised to exploit newly available products and components: high-speed depth camera, accelerometer, high-resolution displays.
6. Enjoy the adventure of working in a field, in a community that's moving so quickly.

In the later paper session, there are several papers about tracking which are related to our research:

1. Foldable Augmented Maps

Sandy Martedi, Hideaki Uchiyama, Guillermo Enriquez, Hideo Saito (Keio University), Tsutomu Miyashita, Takenori Hara (Dai Nippon Printing Co., Ltd.)

This paper presents folded surface detection and tracking for augmented maps which is similar to my project origami detection. Blue dots are printed on the map for tracking, while in our project we directly extract the natural feature on the paper.



2. Point-and-Shoot for Ubiquitous Tagging on Mobile Phones

Wonwoo Lee, Youngmin Park (GIST U-VR Lab.), Vincent Lepetit (CVLab., EPFL), Woontack Woo (GIST U-VR Lab.)

They proposed a novel way to augment a real scene with minimalist user intervention on a mobile phone: The user only has to point the phone camera to the desired location of the augmentation. This allows the users to snap the image which contains the desired shape for marker.

In the afternoon session, Yong Soon presented his paper: **Flavor Visualization: Taste guidance in co-cooking system for coexistence**. And it was very well accepted, and many audiences came to discuss after the presentation.

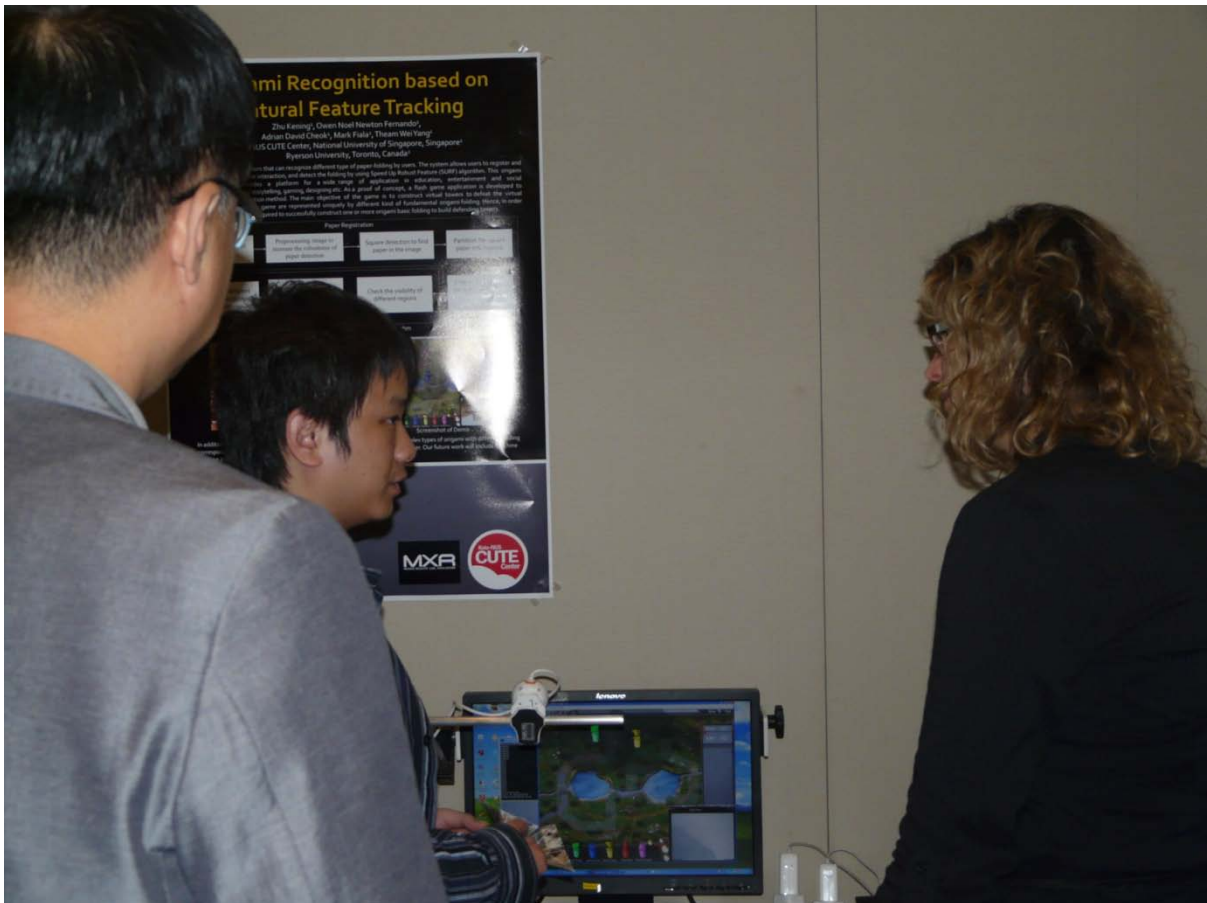




There were also several interesting demos on this day.

Day 3

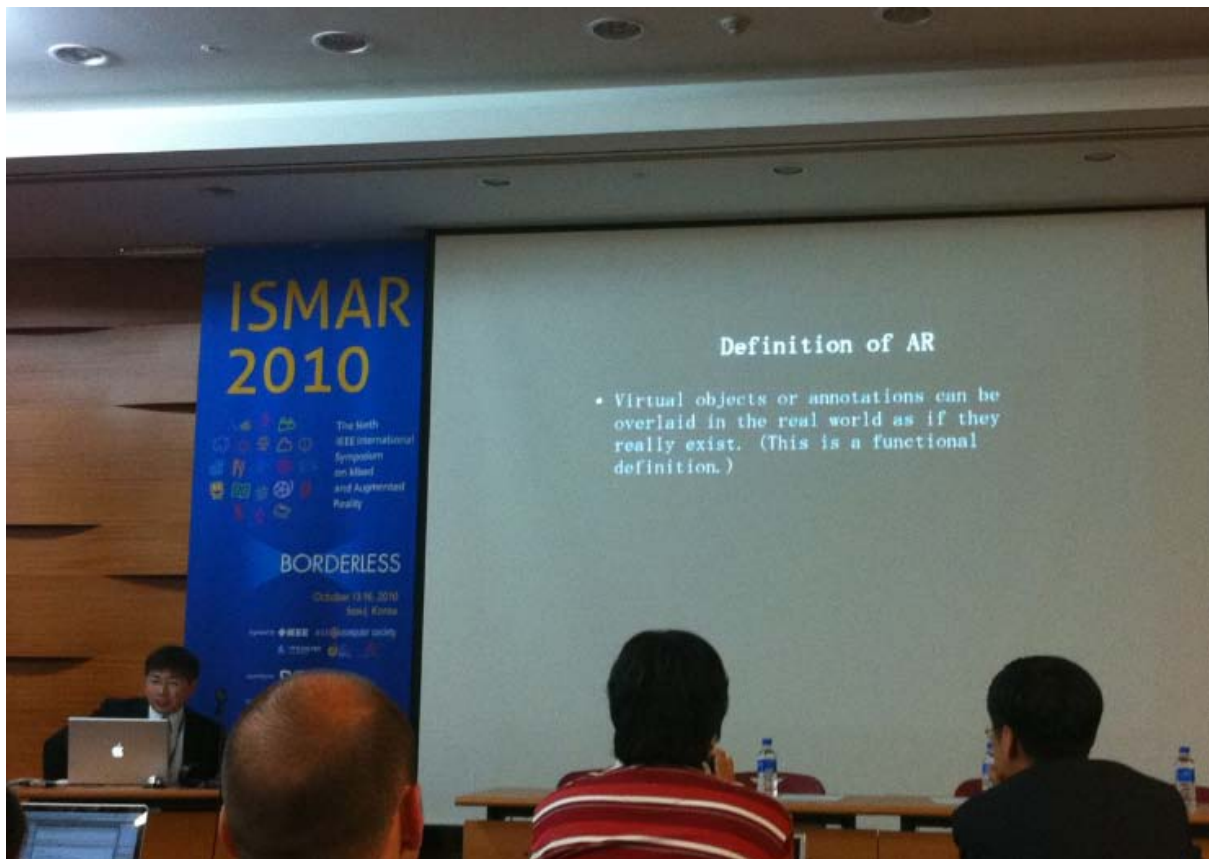
I showed my demo about Origami Recognition for the whole day. The demo was from 9am to 5pm, therefore I came to the conference venue very early and set up the demo. Luckily, the demo worked well. I had a lot of visitors during the day, and many valuable comments were received, such as more interaction should be attached to the paper instead of just building virtual objects, the algorithm can be tried to run on GPU to increase the speed, that's a new and interesting way of using natural feature tracking algorithm.





Day 4

A panel discussion was held on this day. During the discussion, Dr Kato Hirokazu talked about the original purpose of developing augmented reality: help people understand the real world better with virtual annotation naturally without markers.



He gave an interesting example that how people know each piece on a plate of sushi with attaching markers on the sushi. Finally he gave the conclusion as below:

Conclusion

- Let's keep the purpose of the function clearly in our mind.
- HMD researches are very important for the ideal AR.
- Sensing
 - 6DOF Tracking of General 3D Objects
 - Deformable Object Registration
 - General Object Recognition
- We need a clever backend system for supporting human activities without scenario.