

# Interesting difference of VR research-style between Japanese and French

日仏VRにおける  
『面白い』研究スタイルの相違

神奈川工科大学 白井暁彦  
Kanagawa Institute of Technology  
Akihiko SHIRAI, Ph.D  
shirai@mail.com



Conclusion at 1<sup>st</sup> page

We should enjoy  
the difference between  
Japanese and French,  
not as stressing 😊



# Introduction

- Akihiko SHIRAI, Ph.D
- Doctor of Engineering (TITECH)  
New entertainment systems using haptics and large floor displays for children.
- **Science communicator** in Miraikan  
telling the future of information technology to the public
- Specialist in **Entertainment Systems**  
“Contents engineering and innovation”



# Biography

1973 Born in Yokohama, Kanagawa, Japan.

1992-1998 Tokyo Institute of Polytechnics

Photo engineering (bachelor) , Image processing (Master of Engineering)

1998- Canon, Inc. (Japan)

2000- Criterion, Inc. (UK,JP)

2001- Tokyo Institute of Technologies

SPIDAR, haptics, real time physics (Prof.Sato Lab), Intelligent systems (Doctor of Engineering)

2003-2004 NHK-ES, Japan

2005-2007 ENSAM Presence & Innovation Lab, France

2008-2009 Miraikan, Japan. Science Communicator

2010 Kanagawa Institute of Technology, Information Media,  
Associate Professor.





# My works

Research interests in ...

Entertainment systems

Virtual Reality

Computer Vision

Haptics, Robotics

Computer Graphics

Plus...

- “Science Communicator”

Sharing the future of technology between researcher and public.

- Volunteer works for IVRC and Laval Virtual

IVRC <http://ivrc.net>



# “Entertainment Systems”

## *Definition:*

Computer systems that was designed to affect to human amusements.

Video Games, media arts, real time interactive and entertainment virtual reality are possible to be included.

Cinemas and DVDs are also possible to be included but should focus to “*computer system*” like interactivity.



Laval Virutal and IVRC

(Student competition)

One of the big bridge  
between Japanese and  
French VR community



15<sup>th</sup>  
INTERNATIONAL  
MEETING AND CONFERENCES  
ON VIRTUAL REALITY  
AND CONVERGING  
TECHNOLOGIES

# LAVAL VIRTUAL

20>24  
MARCH  
2013  
LAVAL (FR)

[www.laval-virtual.org](http://www.laval-virtual.org)

- Laval Virtual
  - Laval Virtual in few words
  - Where is Laval?
  - Why in Laval?
- Laval Virtual and IVRC
  - History
  - Laval Virtual Awards at IVRC



15<sup>th</sup>  
INTERNATIONAL  
MEETING AND CONFERENCES  
ON VIRTUAL REALITY  
AND CONVERGING  
TECHNOLOGIES



[www.laval-virtual.org](http://www.laval-virtual.org)

## Laval Virtual In few words

Created in **1999**

LV gathers scientists, professionals, students and general public

During **5** days

**Topics:** virtual/mixed/augmented reality, haptic, realtime 3D, interactive techniques, robotic, converging technologies

- Professional Exhibition – **Le Salon**
- Scientific & Professional Conference – **VR Mix**
- Demonstration Contest – **ReVolution**
- Student Competition – **Virtual Fantasy**
- Awards Ceremony - **Laval Virtual Awards**



# 情熱大陸

JOUNETSU-TAIRIKU

毎週日曜 11時

- ▶ ホーム
- ▶ 過去の放送

▶ 情熱大陸コラム

▶ 番組の感想

▶ ケータイコンテンツ

「情熱大陸」DVDのお知らせ



次回の放送

2012年07月15日

よる 11時 00分

## 猪子寿之

デジタルクリエイター



天才？変人？「新時代の旗手」と注目を集める超電腦系クリエイター。この男を  
知れば未来が見えるかも・・・

「日本のスティーブ・ジョブズ」との呼び声高い35歳、「猪子寿之」の名前をご存知だろうか？11年前、東京大学の仲間と共にITベンチャー「チームラボ」を立ち上げ、テクノロジーを駆使した斬新なアート作品を次々に生み出している。例えば店である洋服を手にとると、目の前でその服を着たモデルの映像が動き出す「チームラボハンガー」、書家の紫舟とコラボした日本の「書」

緊急告知

放送7  
新シリーズ

情熱大陸  
SUMMER

名古屋公演/7月2  
大阪公演/8月4日  
東京公演/8月11  
北海道公演/8月2

Facebook  
「情熱大陸」

いいね！ 1,27

twitter でフォロー

ツイート 1,51

情熱大陸  
みんなのつぶやき

amanojaco  
情熱大陸20



15<sup>th</sup>  
INTERNATIONAL  
MEETING AND CONFERENCES  
ON VIRTUAL REALITY  
AND CONVERGING  
TECHNOLOGIES

# LAVAL VIRTUAL

20 > 24  
MARCH  
2013  
LAVAL (FR)

[www.laval-virtual.org](http://www.laval-virtual.org)

## Laval Virtual Where is Laval?

North-West part of France

Close to Brittany

1h30 from Paris by High-Speed Train (TGV)

Middle-size city: 50,000 inhabitants

Typical Mediaval French city



15<sup>th</sup>  
INTERNATIONAL  
MEETING AND CONFERENCES  
ON VIRTUAL REALITY  
AND CONVERGING  
TECHNOLOGIES



[www.laval-virtual.org](http://www.laval-virtual.org)

## Laval Virtual Why in Laval?

Since 1999, Laval became a Pole of Excellence in Virtual Reality

Start-up incubator

Research Laboratories

Higher Education

Technology Center (4-side CAVE, haptic devices, VR workbench...)

In 2010, we have founded the cluster **LVRC** (Laval Virtual Reality Capital)



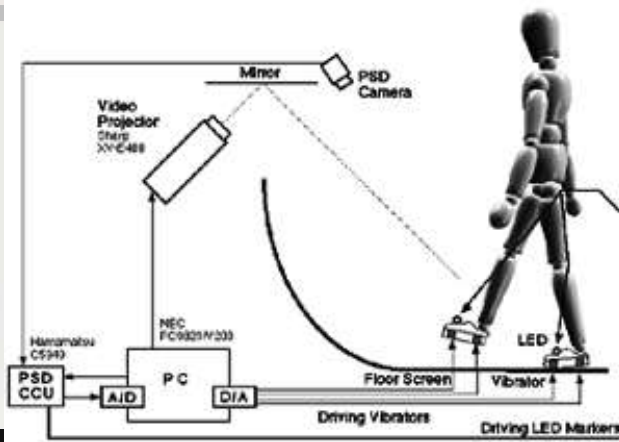


# ■ ■ ■ ■ Projects

---

- 1998      Fantastic Phantom Slipper
- 2000      RenderWare on PlayStation2
- 2001-      SPIDAR and Springhead
- 2002      the Labyrinth Walker
- 2001-      Tangible Playroom series
- 2004      Advanced 3DCG
- 2005      LuminaStudio, RoboGamer series
- 2006-      GPUVision series, WiiMedia series
- 2008-      [Miraikan] Science Communicator, 4K Digital Cinema
- 2010      [KAIT] Scritter series, ResBe

# Fantastic Phantom Slipper



- Real-time motion capture using **slipper style** interface.
- Special vibro-tactile, "**Phantom Sensation**"
- Semi-dome style** immersive screen.



# ***RenderWare on PlayStation2***

---

- **RenderWare** is a middleware for RT3D CG.
- **Multipatform** coding environment.  
(PC,PS2,DC,Xbox,Gamecube...)
- Innovative **speed up** in producing method.
- Worked for development and implementation for Japanese game developers.
- Learned their technique, style, culture, future...

# SPIDAR and Springhead

- SPIDAR (SPace Interface Device for Artificial Realities)
  - Invented by Prof.Sato at 1991.
  - String based haptics interface.
- Springhead
  - Framework and SDK for SPIDAR.
  - Artificial beetle
  - Real-time physics engine

➤ Artworks, “Dynamo::taboo”

Dynamo::taboo

➤ Spinning top and pinball







# *the Labyrinth Walker*

- › Locomotion interface **without wearing** interfaces.
- › **4 pressure sensors** and motor controlled turn-table.  
It detects human walking steps and its orientation.
- › Its artworks are imported from 3DSMax via VRML2.0 files.
- › Demonstrated at **SIGGRAPH2002** E-Tech as  
*“A New Step-in-Place Locomotion Interface for Virtual Environment With Large Display System”*.
- › Some children museum had interest to use it.



# *Tangible Playroom*



- New entertainment system for future children
- Replacing current home TV games.
- Haptics, full body motion oriented.  
Using large display and SPIDAR style force feedback devices.
- Contents using Real-time Physics.  
Not a fake, educational experience using human size VR.

# ***"Tangible Playroom", version 2001***

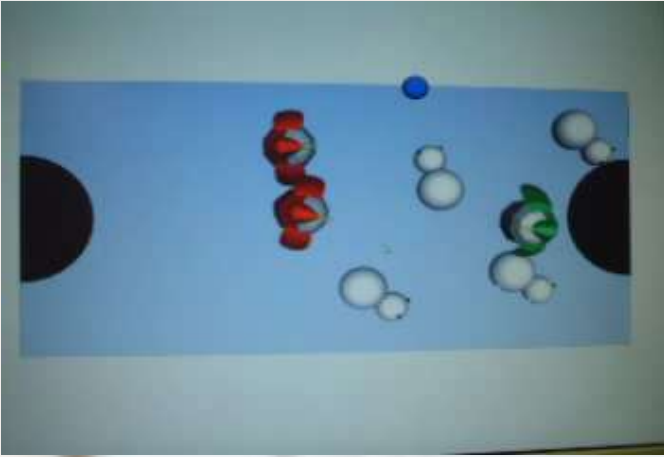


- ✧ Exhibition project using virtual reality technologies.
- ✓ Big size SPIDAR(H4xW2xL3 m).
- ✓ Immersive large floor screen using network connected multi-projection system.
- ✓ A.I. and real time physics.
- Players can interact with artificial characters by their whole body.
- ✧ It could show a possibility of "haptics entertainment" but it was very huge to experiment.

# A content of *Tangible Playroom*



## “Penguin Hockey”



- The first but most characteristic content of Tangible Playroom.
- Players have to recognize shape and touch of objects via haptics.
- The player is designed as a partner of loser penguin.
- To get a point, players have to put a snowman to each goal.
- The player can feel difference of the weights between snowmen and penguins.



# ***"Tangible Playroom"***

## ***version 2002***

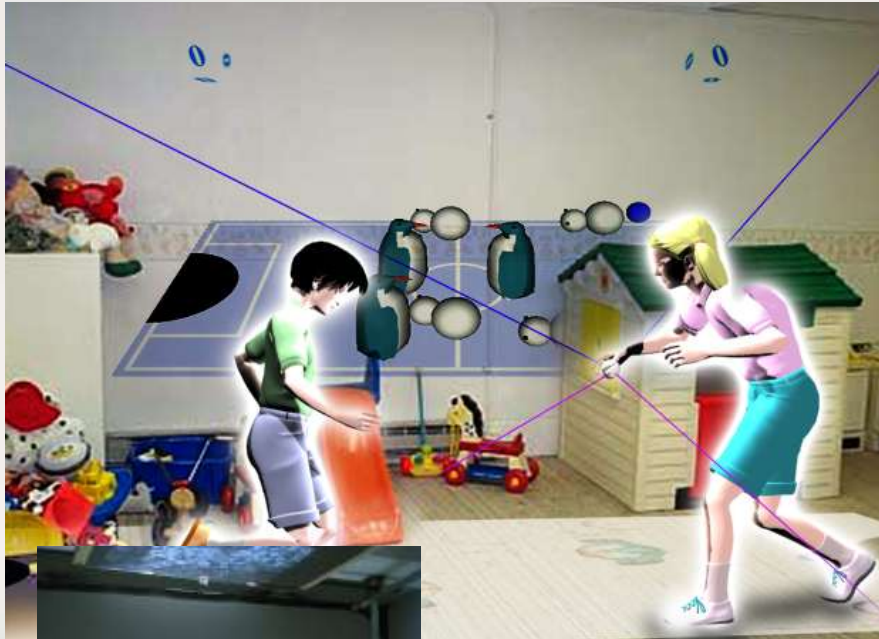


Image sketch



- Redesigned for future home computer entertainment system.
- ✓ Implement to living room.
- Experimented about modes of haptics and projection.
- ✧ It was suitable for experiment but it couldn't experiment at outside of the laboratory.

# ***“Tangible Playroom” version 2003***



At SIGGRAPH2003 SIGKIDS

- ✓ To get more natural data when children play the game, it should be mobile.
- ✓ 135cm cubic frame.
- Experimented about difference of behaviors between Japanese and American children.
- ✧ It can record players motion naturally but it isn't so enough to walk freely.

# ***"Tangible Playroom"***

## ***version 2004***



At Laval Virtual 2004



- ✓ To keep mobility and large field, the encoder motors can be attached to structures by clamps.
- ✓ All of systems can be carried by one person by his hand.

# *Tangible Playroom*

## *-content example 1-*

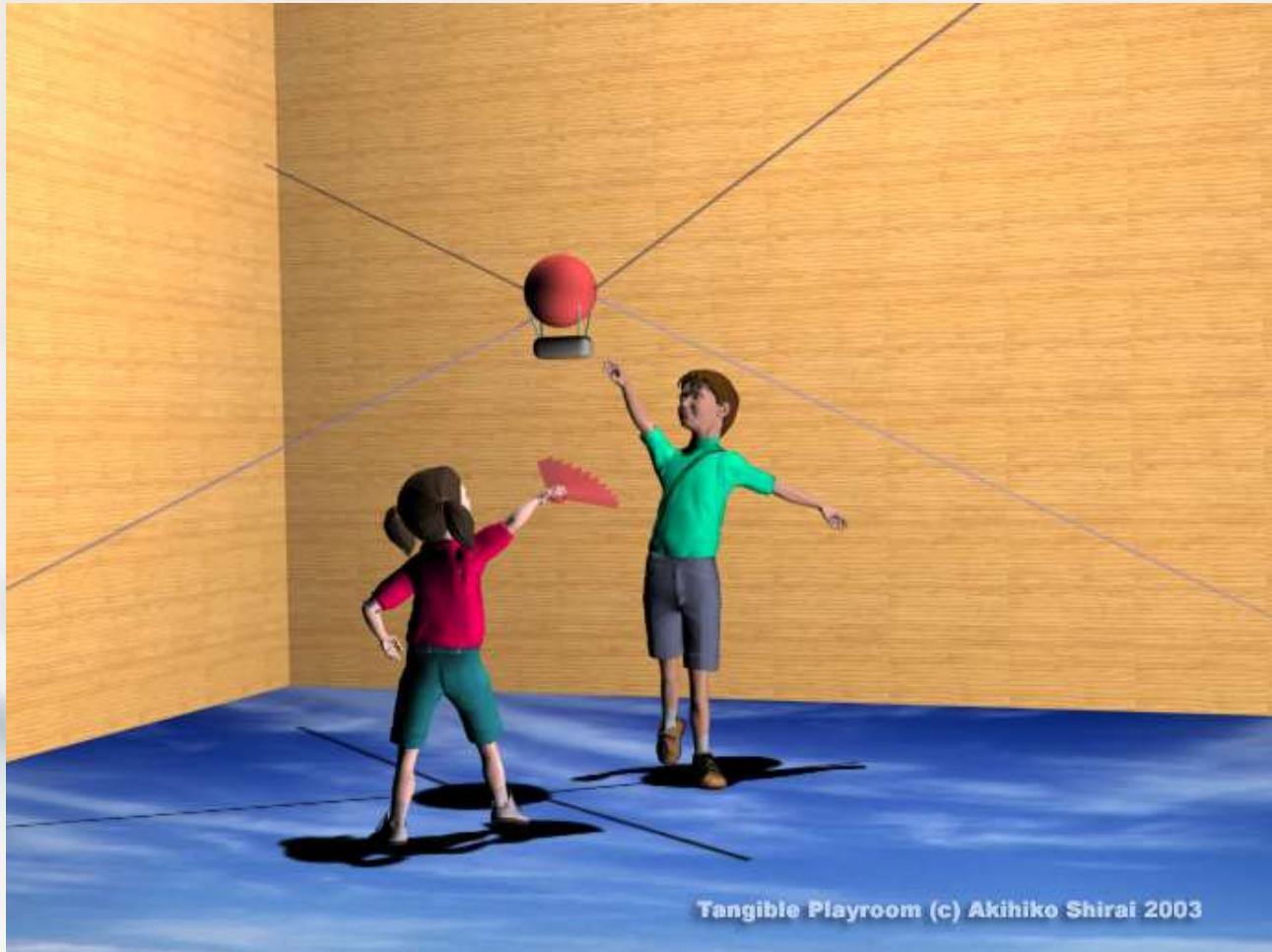


➤ “Geographic simulator” using force feedback.



# *Tangible Playroom*

## *-content example 2-*



➤ Balloon simulator with wind force feedback.

The girl can play with a toy with image recognition.

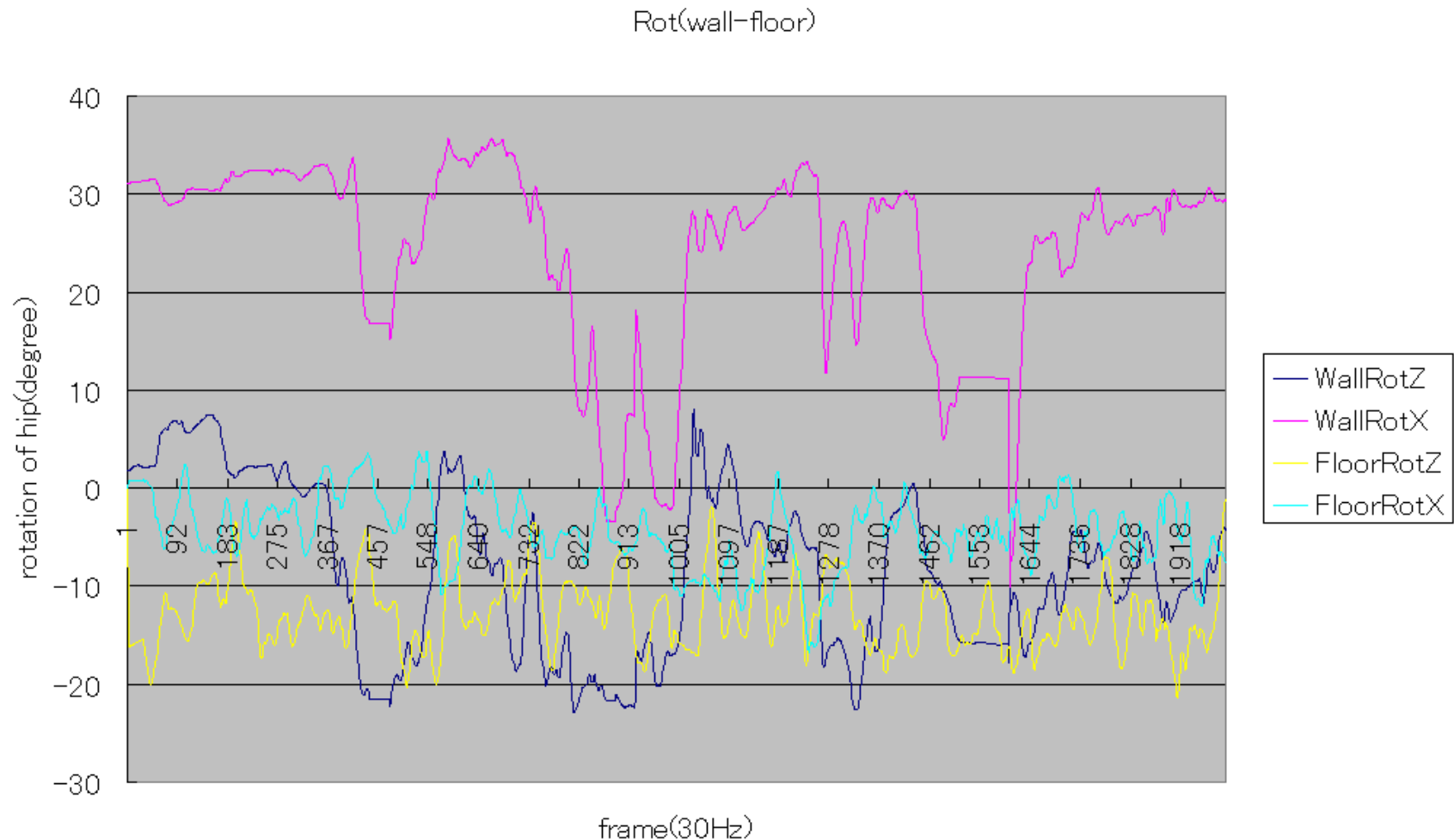


## *Evaluations of TangiblePlayroom*

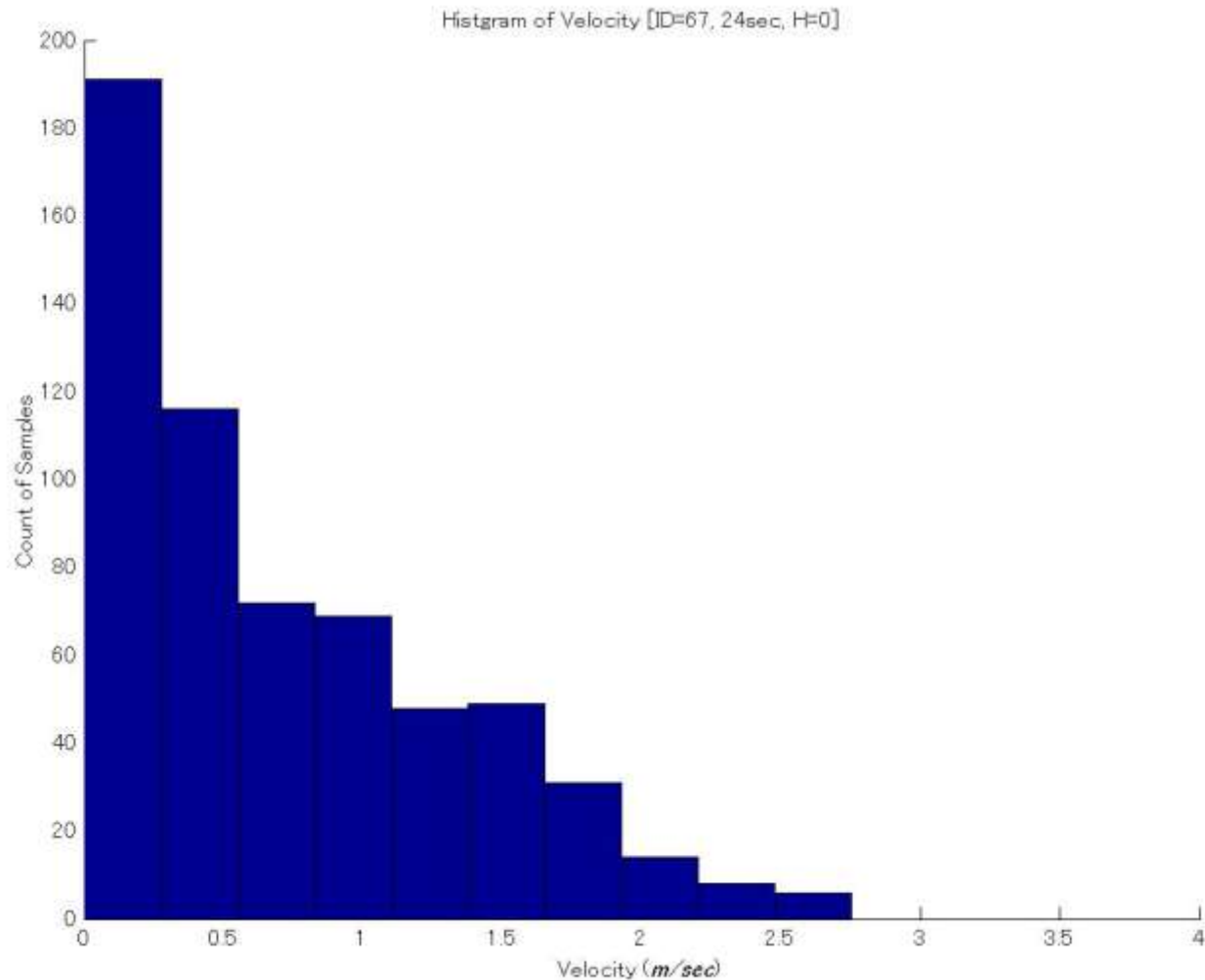
---

- Evaluations concept realization
- Activation behaviors of players
- Players categorization
- Questionnaire (subjective method)
- Biometrical (other evaluations be needed)

# Physical Evaluation of display methods -raw data of motion sensor on player-

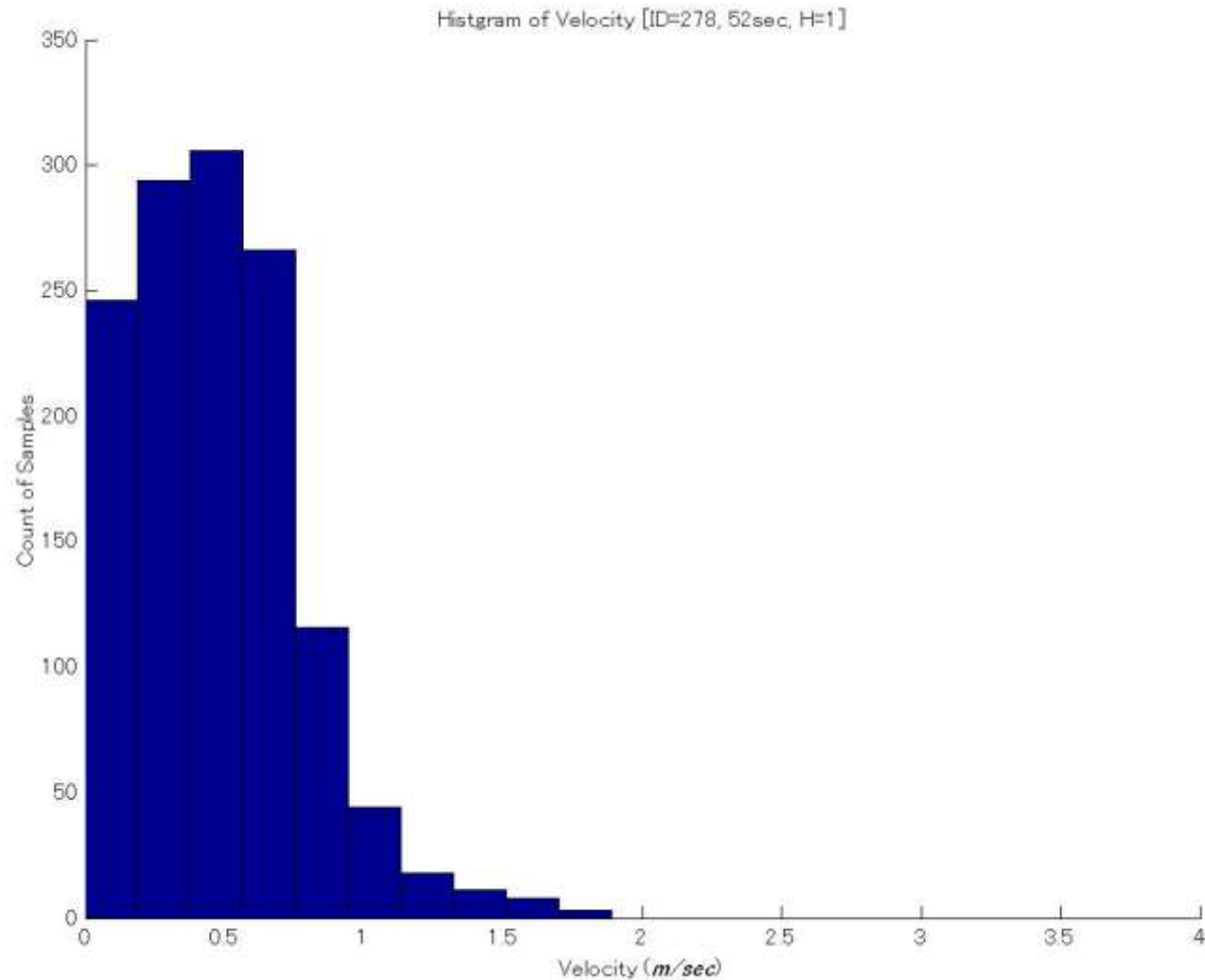


# Physical Evaluation of force feedback -recorded data of SPIDAR pointer(FE-OFF)-

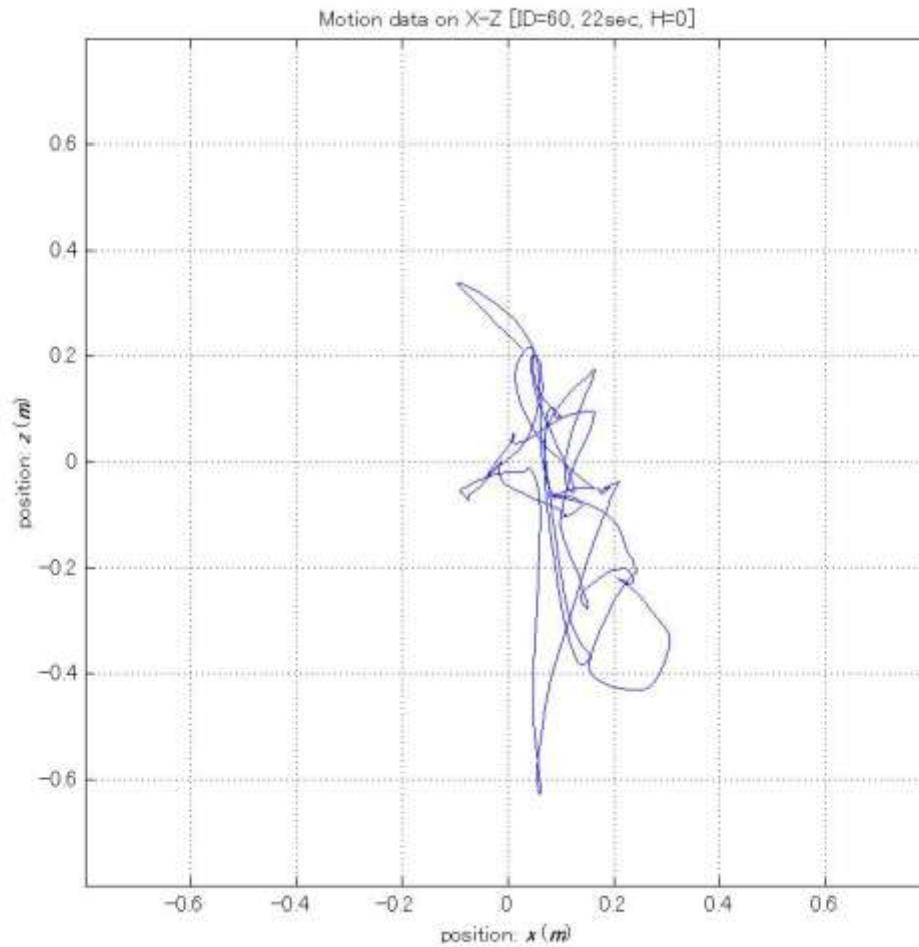




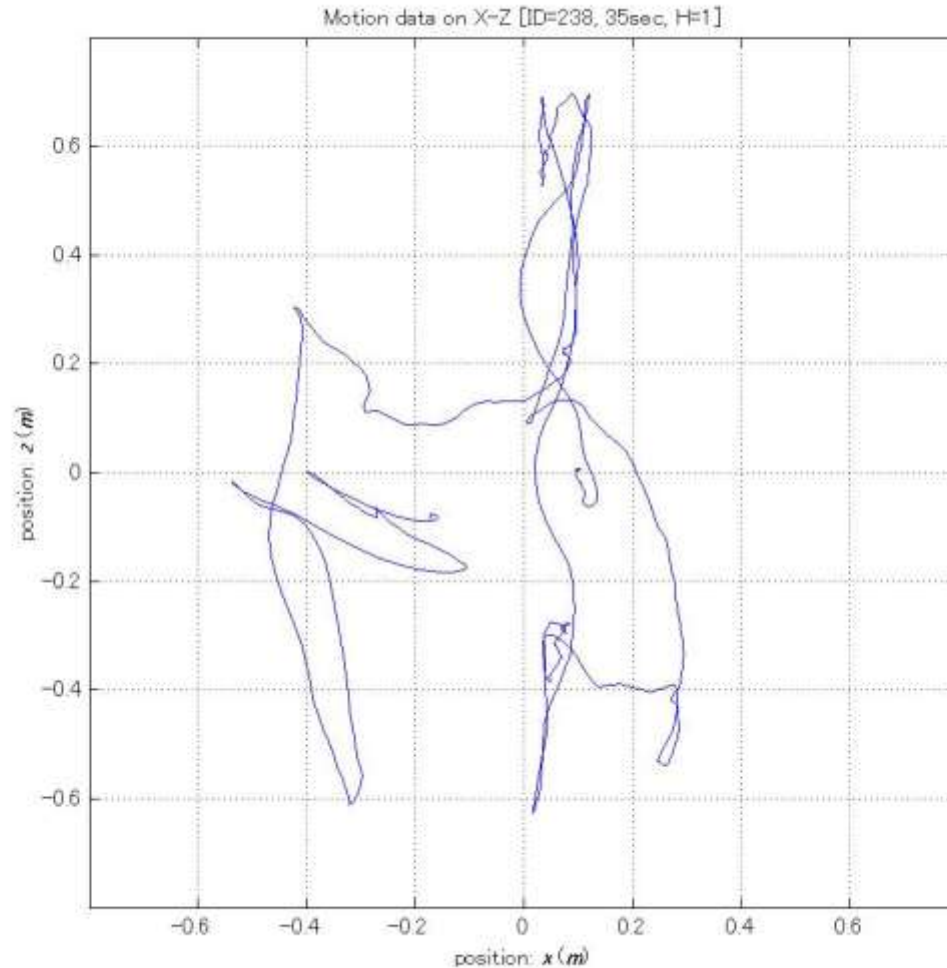
# Physical Evaluation of force feedback -recorded data of SPIDAR pointer(FE-ON)-



# Physical Evaluation of force feedback -recorded data of SPIDAR pointer(FE-OFF)-



# Physical Evaluation of force feedback -recorded data of SPIDAR pointer(FE-ON)-





## *Short Conclusion of TangiblePlayroom*

---

- **Concept to Development**  
it was needed 4years, but not finished.  
Ordering concepts is very important!  
because huge system need huge resources.
- **Develop several type and applications**
- **Separate and Evaluate it in physical measures.**  
it can makes approach “mixed” works to scientific works.



# Advanced 3DCG

*In NHK-ES*

- **Photo realistic** real-time computer graphics for next generation TV environment.
- Global illumination, Image based lighting...



Frame rate (FPS) : 20.41



Frame rate (FPS) : 14.14

*Where is Laval ?  
Why Laval?*





Worm pesonality



Judo friends

\*Mr.Kanoh Jigoro





# ***“LuminaStudio”***

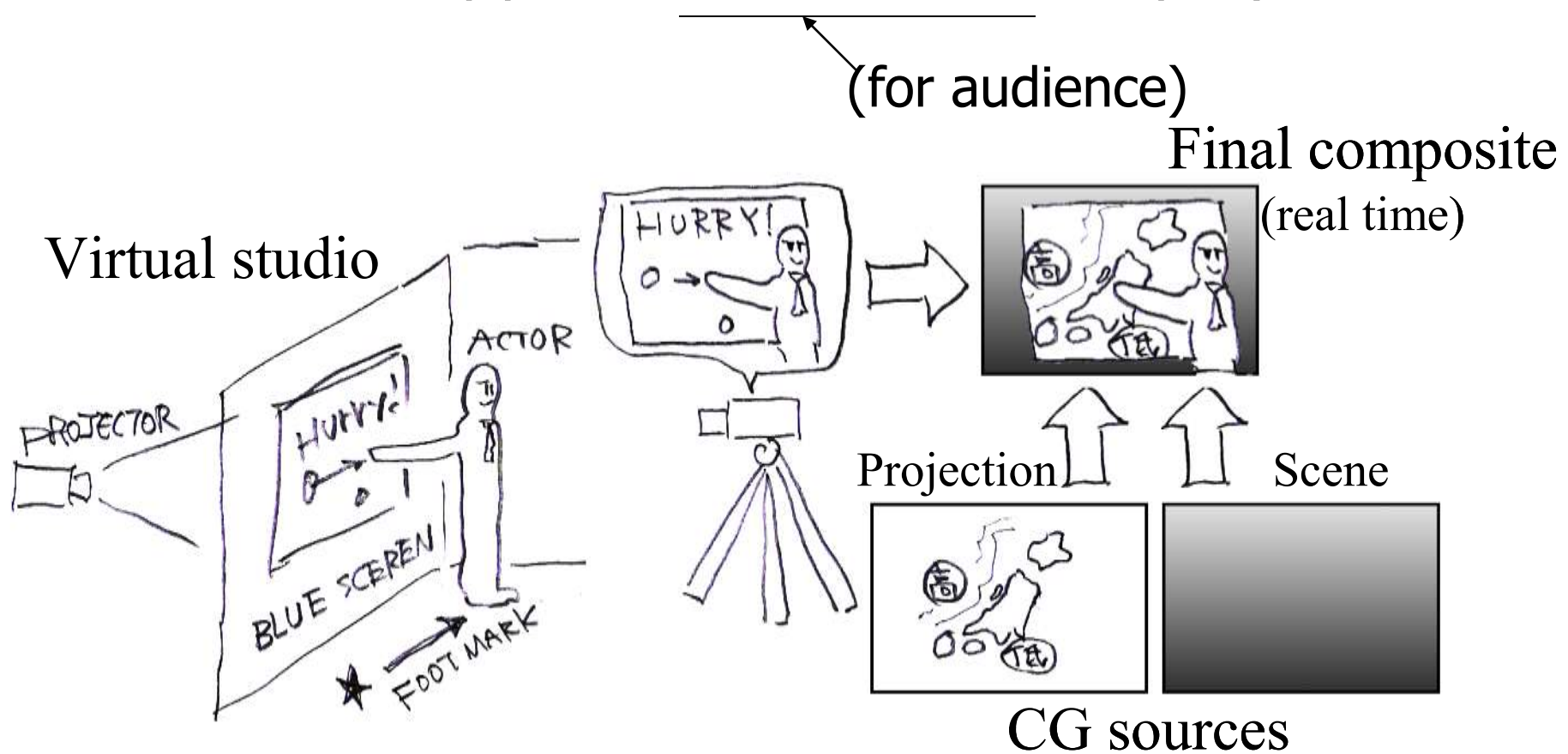
---

Motivation: *New keying tech.*

- Focusing to develop the next generation of *chroma-key*.
- Chroma key is good but...
  - + Traditional method.
    - The actors cannot see the objects.
    - “Keying color” should be robust.  
(We would like to use more color for keying!)



# *Supportive “invisible” display*



- Actors can see the objects.
- Additional information from director.
- Cooperative with current virtual studio technologies.



## *Concept of “Lumina Studio”*

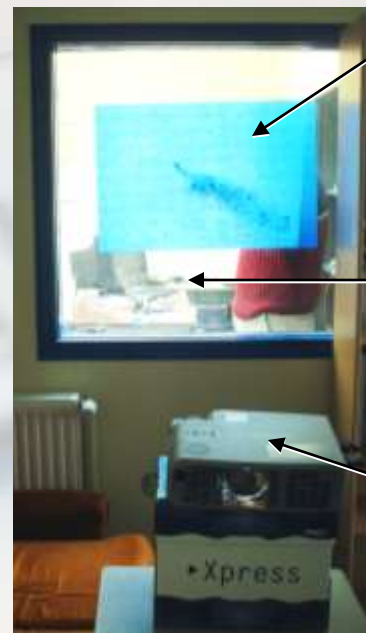
---

- Cheaper method using PC based tech.
  - Simple setup
  - GPU (Graphics Processing Unit) blending
- Cooperative with current methods.
  - Non-exclusive use with chroma-key
  - Luminance intensity from projector has possibility to make contrasts.
  - Specialized Hardware will be possible, but it is not flexible and cheap.



# Lumina Studio

## Configuration



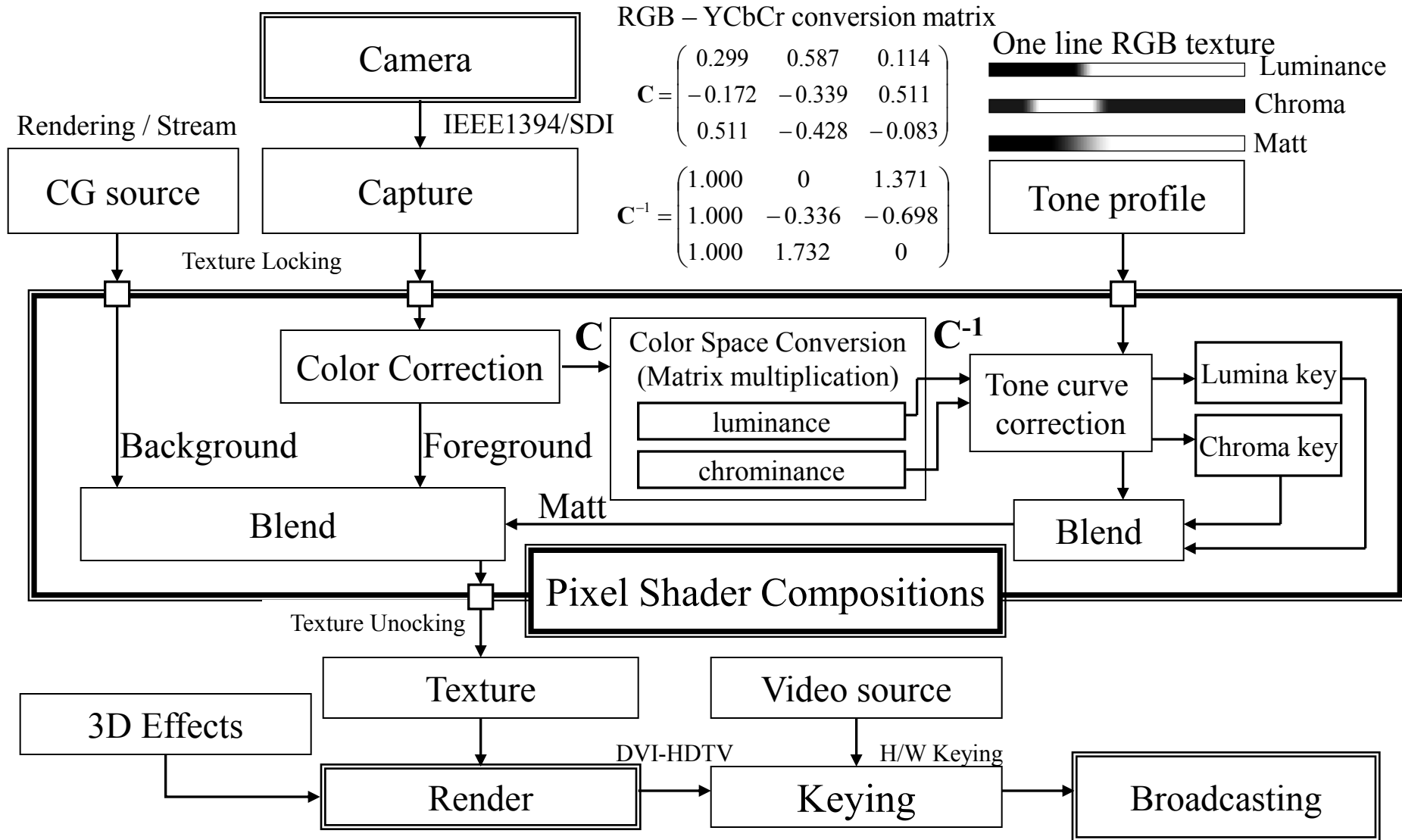
Blue sheet  
(color is free!)

Transparent wall  
(A.k.a. glass)

Projector  
ANSI 2000 Lumen

If the blue illuminated area is overloaded by high-quality video, it can make a new composing method!

# PixelShader technique



➤ Combination of Chroma and Lumina keying using PixelShader.

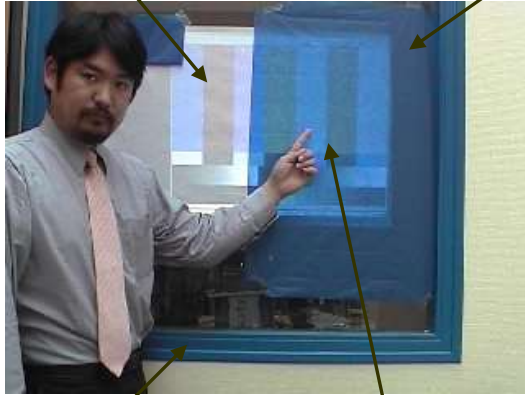


# PixelShader technique

## Source (daylight)

White screen

Blue screen



Blue structure

Color bars

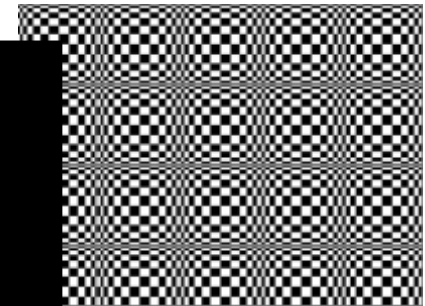


Lumina key



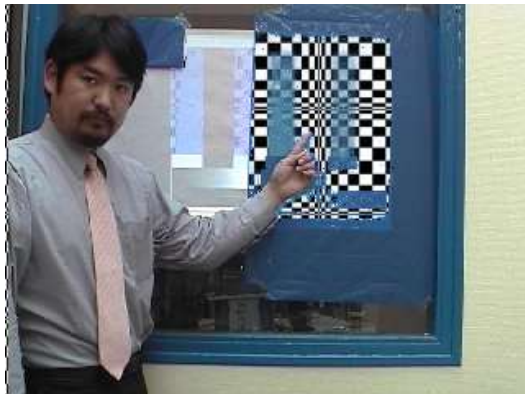
Chroma key

CG Source



Matt

## Composed (real time)



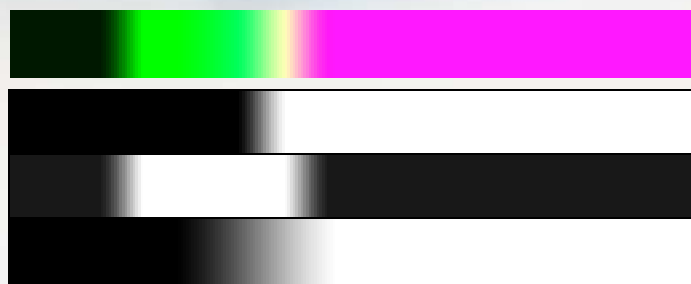
Blend





# Details

- Real-time Video composing software.
  - Input source is IEEE1394 DV Capture (30FPS)
  - Running on Laptop PC (CPU:1.7GHz, GPU:ATI Radeon9700)
  - It runs over 100FPS. (not optimized!)
- “Tone Profile” is a small texture file.  
Then the tone correction easier than coding.



➤ 256x1 pixels RGB color

Red :Lumina

Green:Chroma

Blue :Matting



# *Evaluation Experiment*

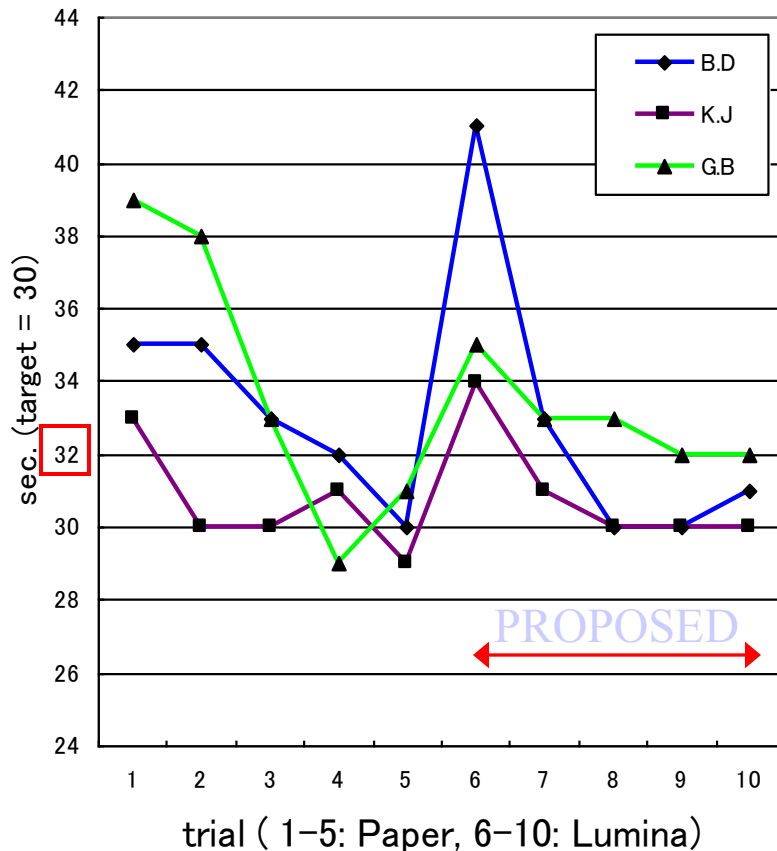
---

- Focused to make a “training environment”
  - Because its advantage is “visible”.
- Tasks for participants (6 French students)
  - Play a weathercaster for 30 sec.
  - Read an English script (non-native language).
  - Playing with virtual character.
  - 2 Groups: “Paper-Lumina” or “Lumina-Paper”

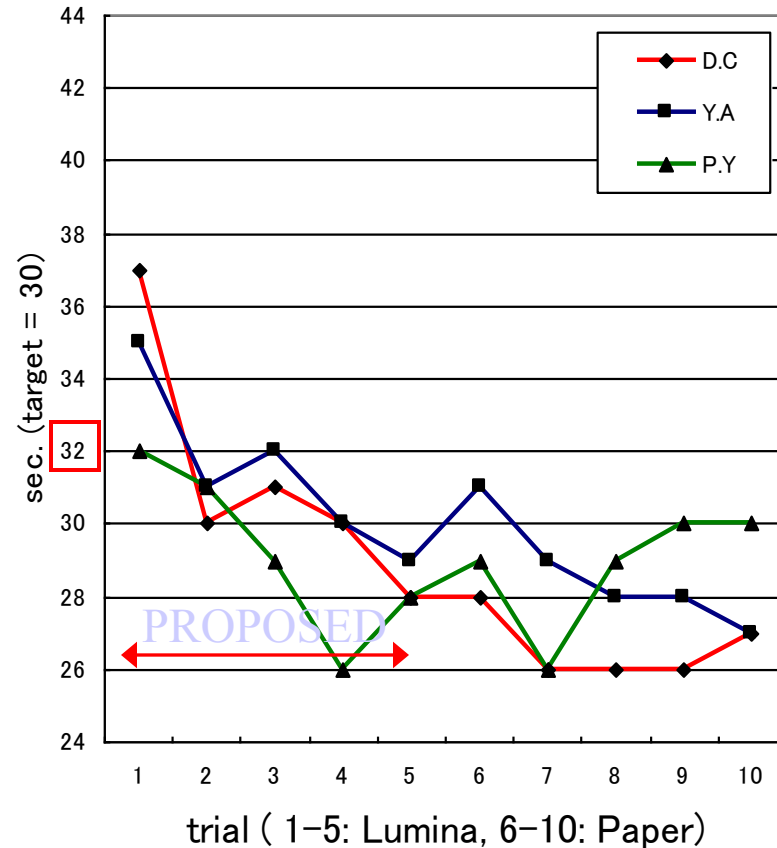


# Result: time to finish

Group A ( Paper – Lumina )



Group B ( Lumina – Paper )

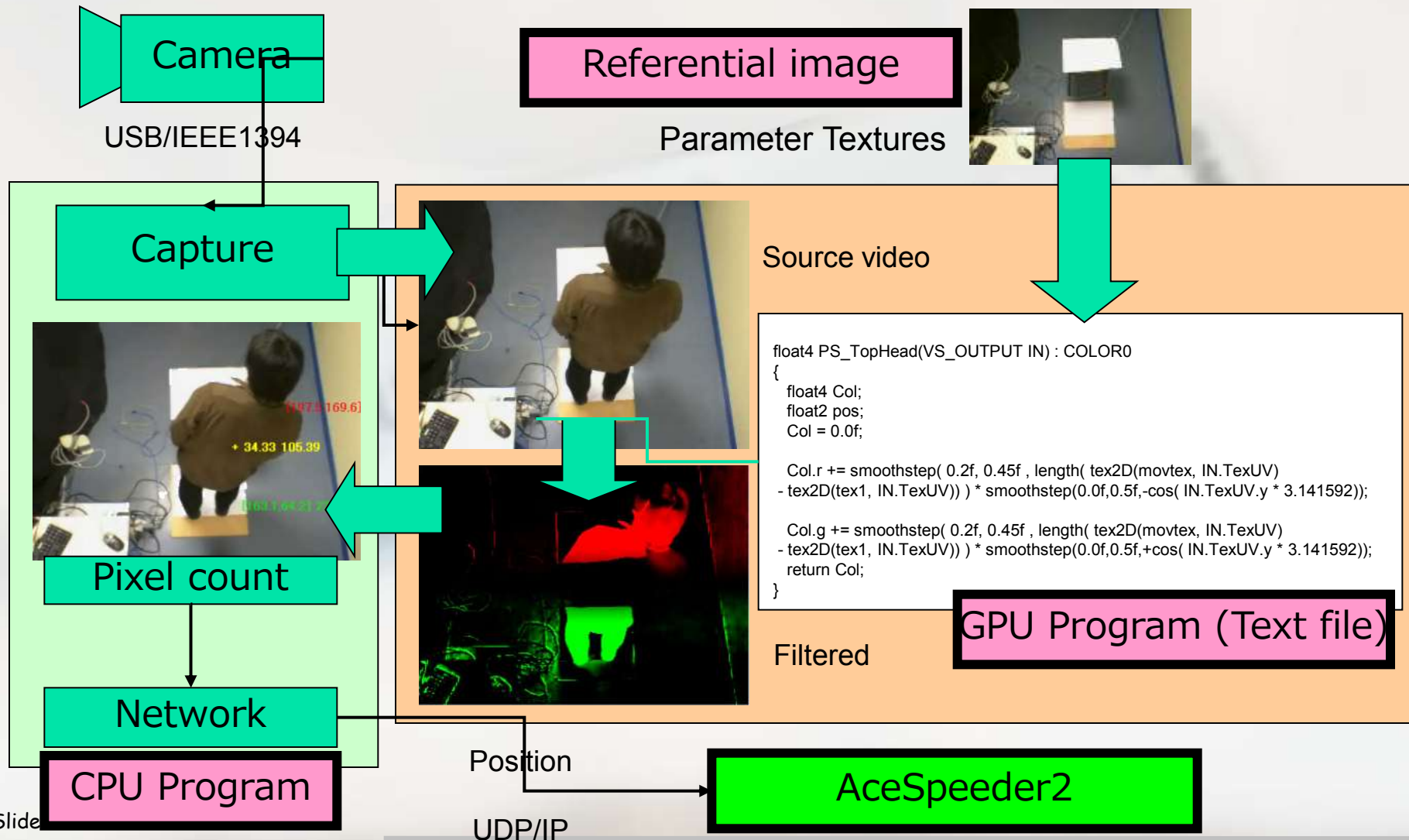






# GPUVision

software design

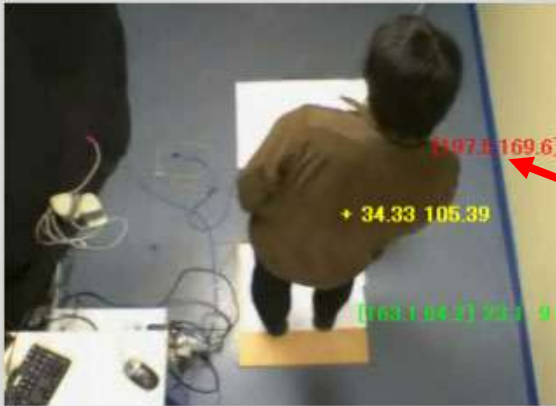




# GPUVision

screenshot

Source video



GPU Processing



Filtered image

## [GPU Processing]

- Comparing with a reference image
- Color toning by height

Detected position

## [CPU Processing]

- Counting only for targeted color (=green and red)

===HELP===

F1: Toggle help

1,2,3: Switch effects

4,5,6,7,8: Change packet mode

Mode: TopHead



# GPUVision

# GPUVision

*one application for a racing game interface*



## **Input left or right, and boosting**

- With full body motion
- Without markers
- Auto calibration
- Non limitation for users
  - Nationalities (skin colors)
  - Clothes
  - Heights (<120cm)





# Comparing interfaces







# Design Evaluation





# ***“RoboGamer”***

***Physically connected robotic game player***





# COLLABORATIVE PORTABLE TV GAME PLAYING ROBOT **RoboGamer** MARK-2



## REAL TIME VFX

## SPIDAR

- PHYSICAL CONNECTION TO A CONSOLE,
- PLAYER CAN COLLABORATE WITH A.I.



## TV SCREEN



## DVCAM



## ***Short Conclusion of RoboGamer***

---

- It can change and control current HI,  
Without modifying target game systems.
- New Human Interface research
- Standard Player
- Players Emulation

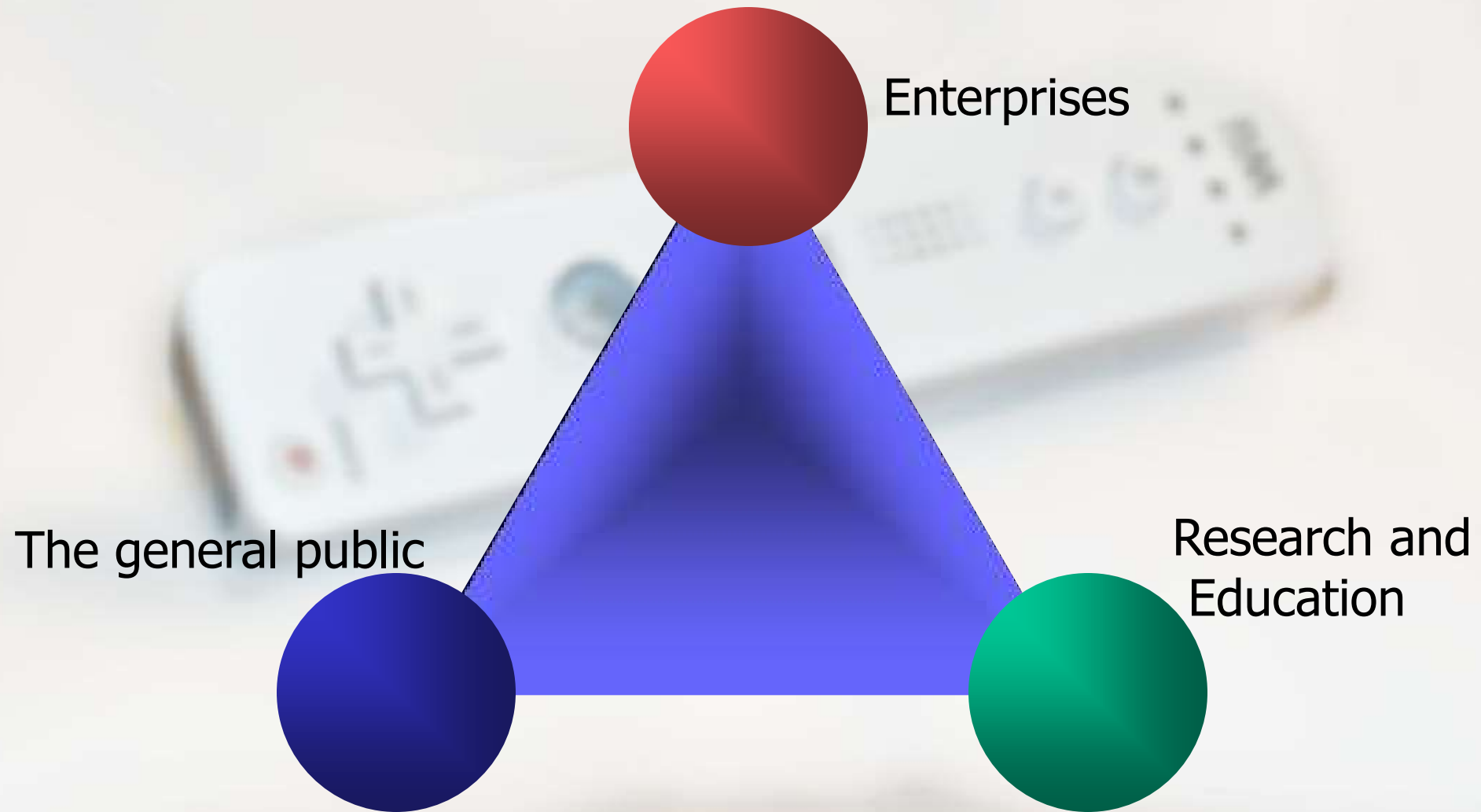


# ***Why I work in Laval?***

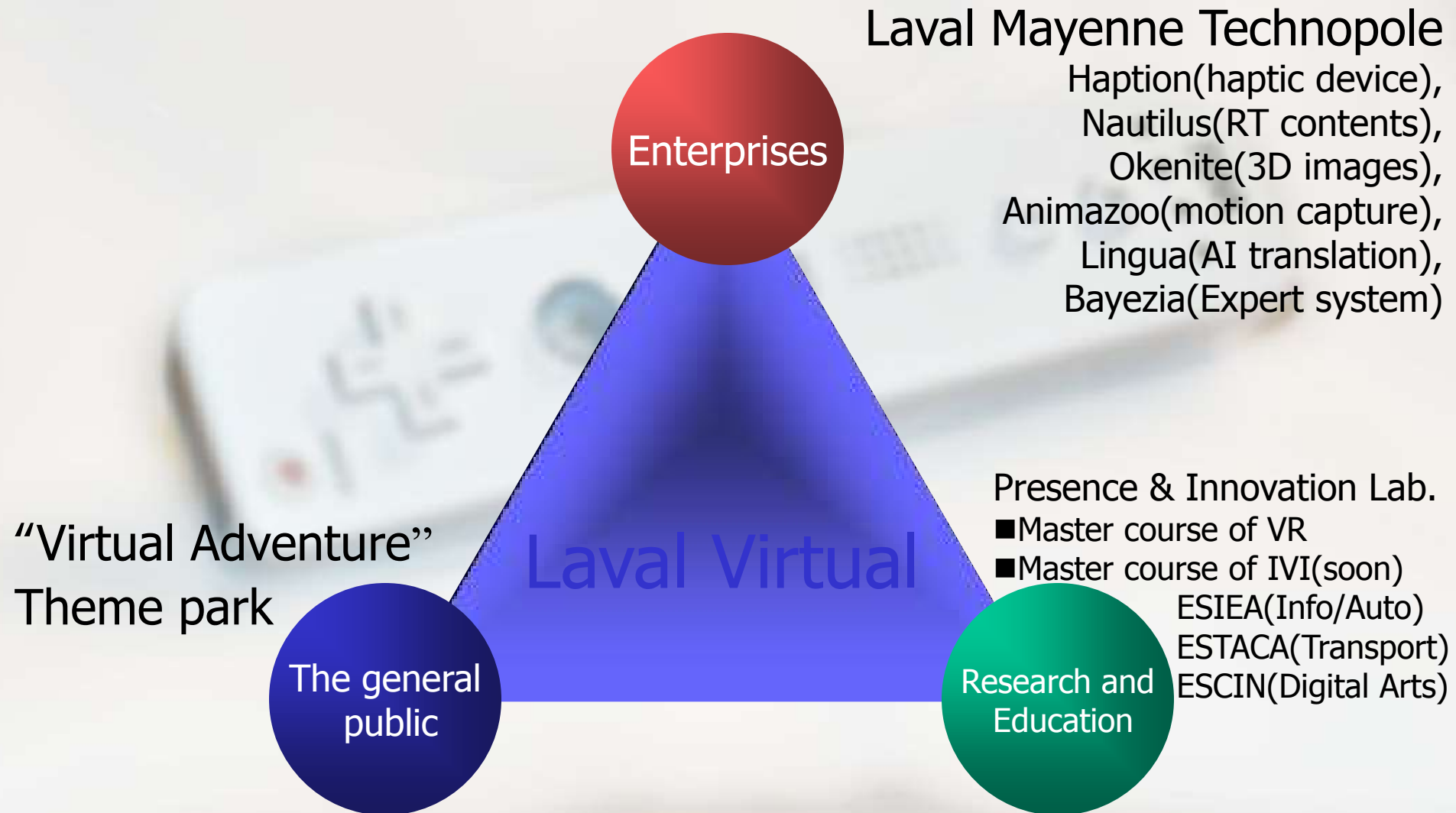
- ✓ Academic vs Industrial
  - Industrial engineers don't focus to academic topics. Paper, presentation, knowledge sharing...
  - Academic VR researchers don't improve in the field. They should enlarge their technique for general public more.
- ✓ “Laval” has a chance.
  - The base city of VR research.
  - Collaboration with laboratories and companies.
  - “Laval Virtual”, the biggest VR convention in Europe.
  - A theme park project, “Parc de l’Aventure Virtuelle”.



# ***Laval Expertise Network in Virtual Reality organization***



# *Laval Expertise Network in Virtual Reality organization*





# ***Basic research for future entertainment platform***

---

- Needs
  - Full body interaction system with force feedback
  - Attractions for the theme park
  - Laval Virtual annual exhibition
  - Stable, easy maintenance, and safe
  - Of course, it should be fun! (…or educational)
- Seeds
  - Wire based haptics system, SPIDAR.
  - Real time rigid body simulation for haptics system, Springhead.
  - Advanced 3D graphics running on real time.



# Core technologies

## Haptics

- ▣ SPIDAR in CAVE
- ▣ Safety, stable, easy

## Computer Vision

- ▣ GPU Image processing
- ▣ Rapid camera
- ▣ New tracer method

A new generation of  
**“Tangible Playroom”:**  
**Entertainment Platform**  
**for future children**

## Display Tech.

- ▣ Real-time Rendering
- ▣ New display tech.  
Stereo, Fog, HMD...

## Evaluation

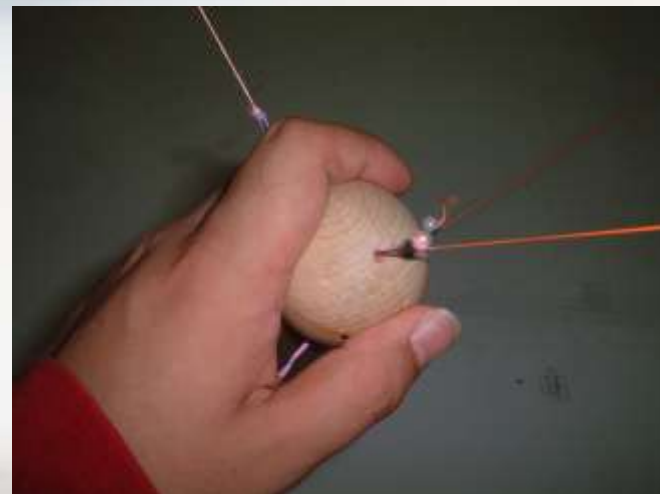
- ▣ Physical evaluation  
(non subjective)
- ▣ Excitement model
- ▣ Field works





# *Haptics*

- SPIDAR in CAVE Style Display
  - Big size SPIDAR has some problem to keep its precision.
- Safety, stable, easy maintenance
  - Design, Looks & Feels
  - Robotics, controlling
  - Software technique
  - Hardware technique

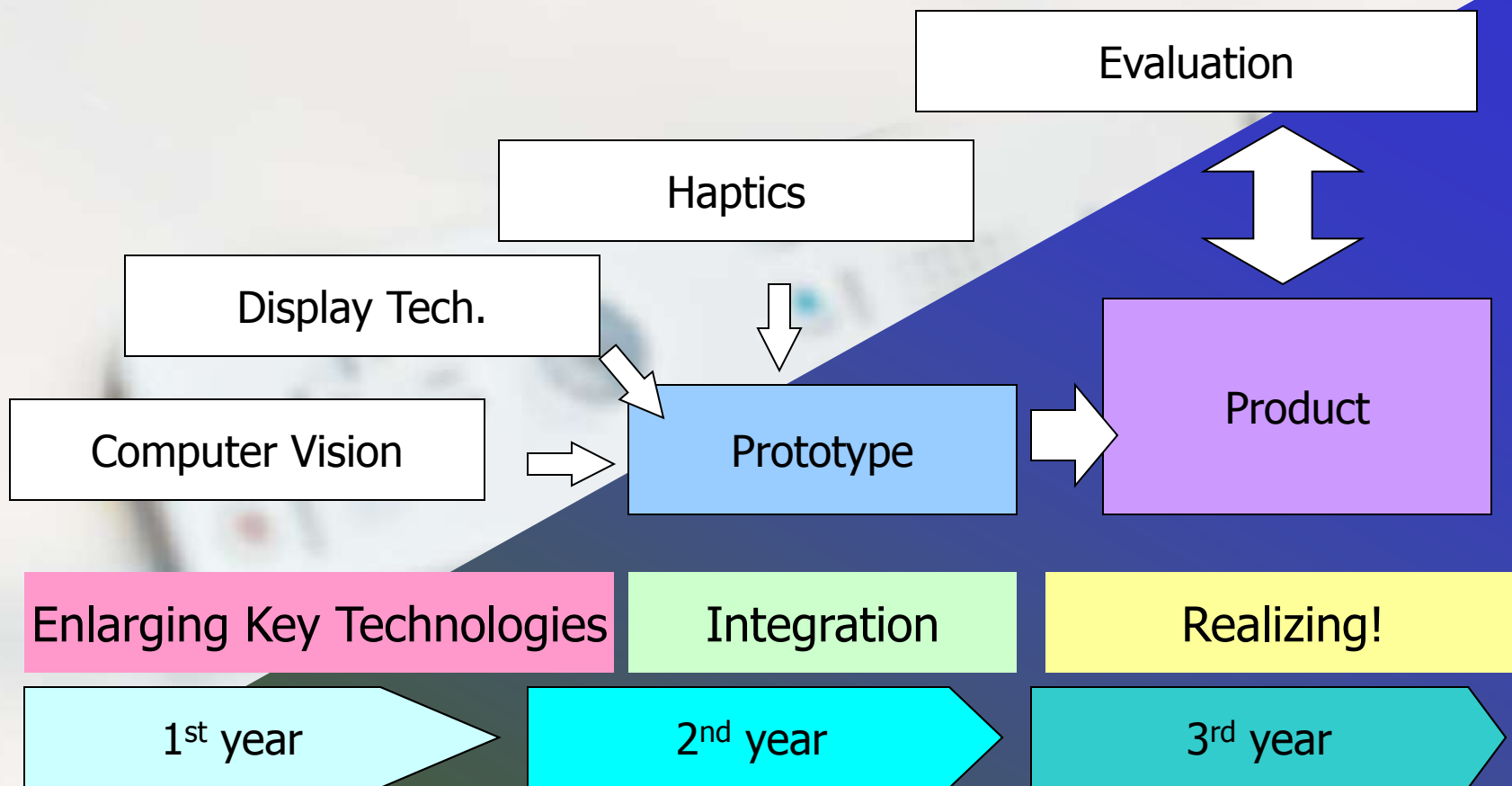




# Computer Vision

- GPU Image processing and recognition  
New techniques on Graphics Processing Unit.
  - Rapid camera  
300 FPS, IEEE1394 interface
  - New tracer method  
Motion capture, human tracer, eye tracker...
- ✧ These technologies improve VR more!

# Roadmap in 2006





# *Differences, Same things [Fr]*

---

- . Hierarchy in high education (Master Pro/Reserch)
- . Professor works until 16h30. (some exception)
- . Family is most important
- . Long holiday in summer
- . Hand maid (=bricorage, artisanale)
- . Well optimized working style
- . Work in a small, smart team.
- . Mathematics, Philosophy and concepts
- . Speak in French is much faster than English
- . But speaking method is longer and complicated



# I had back to Japan, Miraikan



Lot Area : 19,636m<sup>2</sup>

Exhibition Floor Area : 7,950m<sup>2</sup>

Operation & Management Staffs : 137



## 1995 The Basic Law on Science and Technology

Enacted for Japan to become a scientifically and technologically creative nation.

## 1996 The Basic Plan for Science and Technology

Formulated to develop comprehensive and strategic plans.

## 1998 The construction of the “Tokyo Academic Park.”

– A base providing information in International Exchange, Partnership among Industry, Academia and Government, and the latest Science and Technology.

## 2000 The General Supervising Committee

Formed of members with academic experience.

**Mamoru Mohri (astronaut)** was inducted as **Executive Director of Miraikan.**

## 2001 The National Museum of Emerging Science and Innovation (Miraikan) opened.



※Miraikan is operated by JST as one of the main activities of  
“Program for Promoting Public Understanding of Science and Technology.”

## Miraikan's Brand Slogan

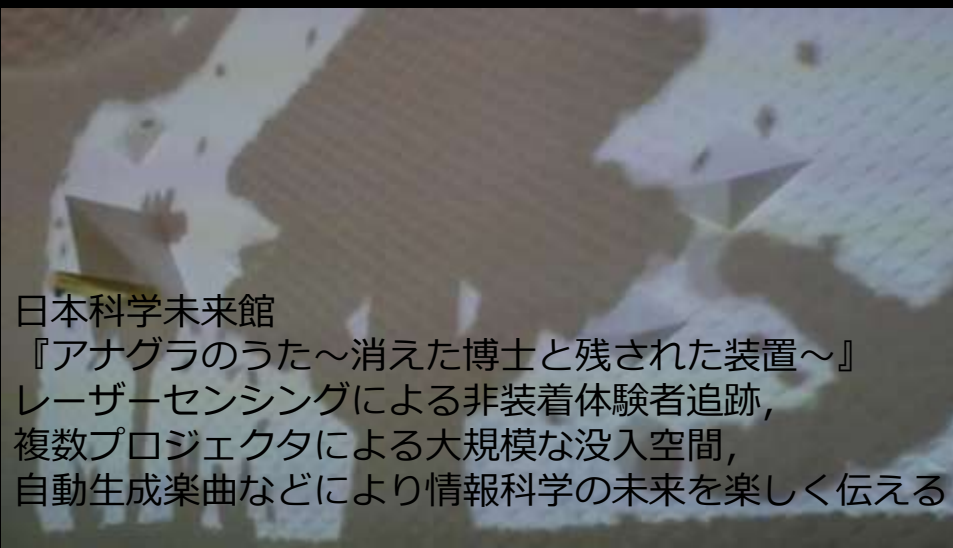
科学が  
わかる

世界が  
かわる

**Open your mind  
to science**

**See a whole  
new World**

# *In Miraikan, Science Museum*



日本科学未来館  
『アナグラのうた～消えた博士と残された装置～』  
レーザーセンシングによる非装着体験者追跡、  
複数プロジェクタによる大規模な没入空間、  
自動生成楽曲などにより情報科学の未来を楽しく伝える





# *Differences, Same things [Jp]*

- . Big speaker take decisions
- . Mostly works until midnight.
- . Family is might be important
- . Very optimized holiday in summer
- . Hand maid (=maestro)
- . Well optimized working style, especially in trains
- . Work in a structural, flat team.
- . Difference in “Ph.D” and “Dr.Eng”
- . Speak in Japanese is sort of philosophy in Japanese
- . “Speaking shortly” is cool. Kanji is helpful.



Conclusion in middle

We should enjoy  
the difference between  
Japanese and French,  
not as stressing 😊



# Collaboration techniques for Japanese

- “French” is not difficult, “Nihongo” is so.
- Don’t send a lot of emails on Monday
- Take a sleep but wake up early in France
- Believe, negotiate and enjoy ☺



# Collaboration techniques for French

- “French” is not difficult, “Nihongo” is so.
- Don’t send a lot of emails on Monday
- Take a sleep but wake up early in France
- Believe, negotiate and enjoy 😊



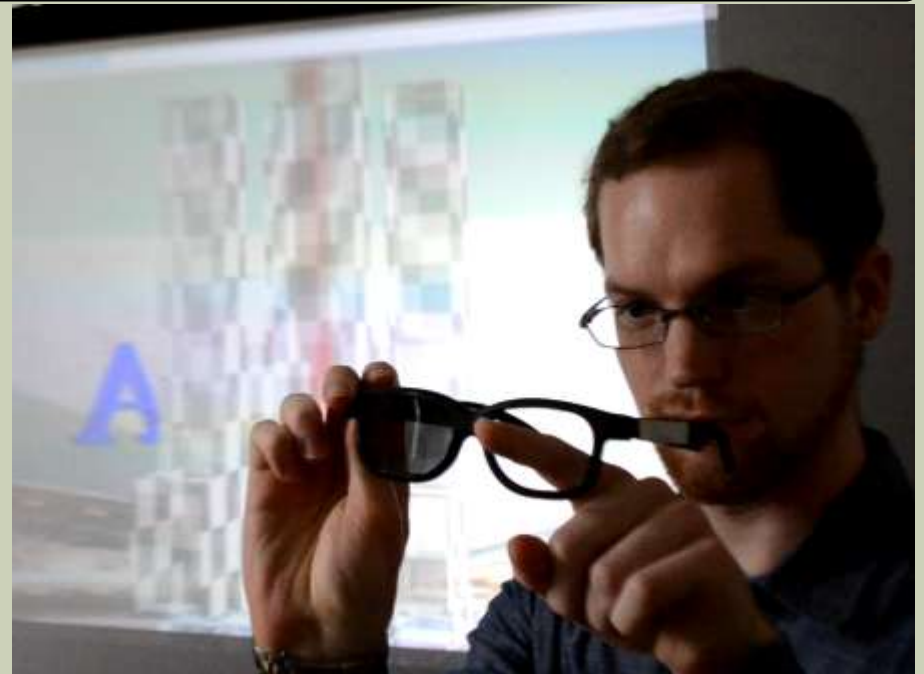
# SCRITTER – IMAGE HIDING USING 3D



# 2X3D – HYBRID 2D+3D

Naked eye : 2D  
Single filtered glass: 3D

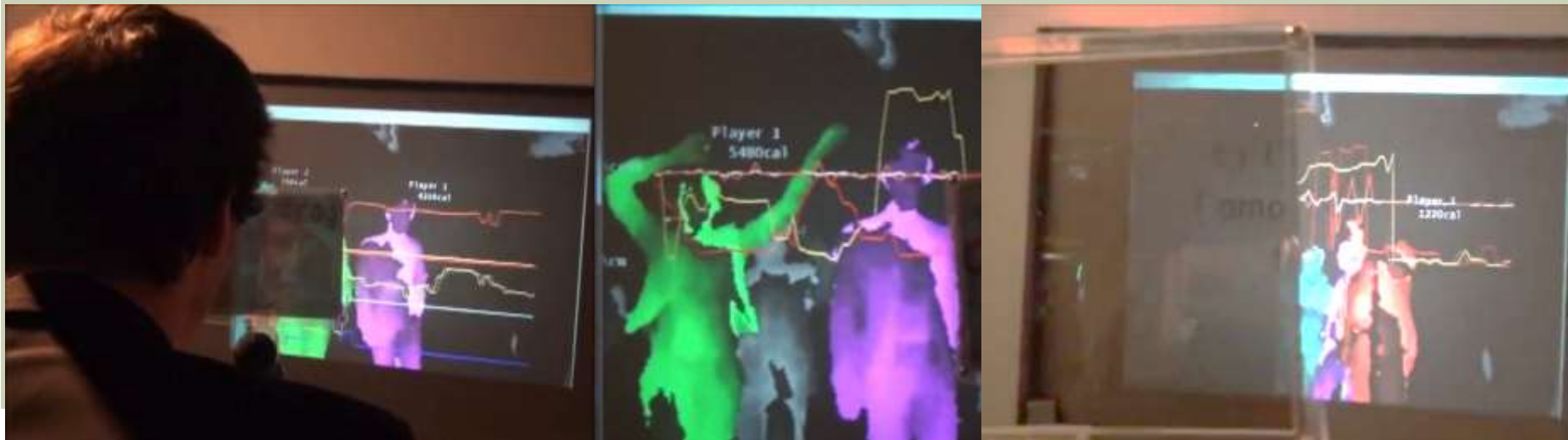
Accepted by SIGGRAPH ASIA 2012 Emerging Technologies!





# PARAOKE – NEW AR FOR KARAOKE

- *“Parallel Augmented Reality for Audience-Oriented Karaoke Entertainment”*
  - 聴衆志向のカラオケエンタテインメントのためのパラレルAR
  - Laval Virtual ReVolution 2012
  - Jean-Jaque Goldman “Je te donne”, “Sur le pont d’Avignon”, Hatsune Miku+ Cresentine “Chocolatier enchantée”....



# Mr. Koki Nagano says:

## ・ 馴れ初め

- 3月の東工大卒業から、USCの2012年秋学期が始まるまで時間があつたので、アメリカで先に研究を始めたいと思っていました。すでに合格をもらっていたUCFのSumanta Pattanaik先生に、卒業後しばらくの期間、一緒に研究ができないか聞いたところ、先生が4月の終わりから5月まで、フランスの共同研究者のKadi Bouatouch先生の所で一緒に研究をするので、「一緒に来てもいい」と言われ、行くことにしました。自費でも行くつもりでしたが、最終的に財団から補助をもらうことが出来ました。

## ・ 受入機関

- IRISA (<http://www.irisa.fr/>) 建物はINRIAと共同で、同じ研究室でも所属がIRISAの人やINRIAの人など、様々な人が共同的に働けるような環境でした。ご存知かもしれませんが、IRISAやINRIA Rennesの周りには、グランゼコールのsupelecやINSAなどがあり、この一帯が学生の街というような感じでした。自分は、月277ユーロのINSAの学生寮に住んでいました。

## ・ 成果

- Sumanta先生のプロジェクトなので、どこまで詳細に書いていいのかわかりませんが、フランスでは、偏光を考慮したVector Radiative Transfer Equation (ベクトル放射伝達方程式、通称VRTE) を解くための手法に関するプロジェクトに関わっていました。CGのボリュームレンダリングで必ず登場するRadiative Transfer Equation (放射伝達方程式 通称RTE)とは違い、VRTEでは偏光が考慮されるので、さらに物理的に忠実で写実的なレンダリングができるだろうというのがプロジェクトの狙いです。CGの分野では、偏光まで考慮したレンダリングなどはあまりなじみがないと思いますが、VRTEの理論はリモートセンシングや熱工学、大気に関する学問では非常に多くの先行研究があります。インターン自体は、1か月と非常に短かったため、あまり多くの事は出来ませんでしたが、先行研究の調査や、CGへの応用、今後のプロジェクトの方向性について話し合い、根幹となるレンダリング手法の開発として、SIGGRAPH論文 (<http://dl.acm.org/citation.cfm?id=1477933>) の実装などをおこないました (煙のレンダリング)。



# Mr. Koki Nagano says:

- ・ 研究スタイルで気がついたこと

- まず1番に思ったことは、みな朝早く（朝8時はすでに、オンキャンパスに住んでいる学生の登校時間のピーク）、帰りが早い（17時から18には、建物から学生も教授もほぼいなくなる）ということです。できるだけこちらの生活スタイルに合わせようと思いましたが、1か月でできる限りのことをやろうと思っていたので、朝早く登校、日没の夜22時くらいに誰もいないラボから1人帰宅という状況でした。また、5月は祝日と休日で半分くらいが休日で、かなりやすみが多かったので最初は休むことに戸惑いましたが、「自分の責任において、休む時は休んで、その分頑張るときに頑張れば良い」と思うようになり、気持ちや生活にメリハリがつくようになりました。午前中には、ラボのみんなでコーヒースタンドに行き、お昼は先生が「ごはんを食べに行こう」とみんなを誘ってランチに出かけ、午後はまたコーヒースタンドがあり、先生も学生指導に熱心で、研究室は非常にいいチームでした。研究室のポルトガル人の学生が「フランスは、productivity（単位時間当たりの仕事量）が世界で1番高い国だと思う」と言っていたことが印象に残っていますが、その通りだと思います。

In LIGHT STAGE, USC ICT

- ・ その後

- USCのLight Stageは、偏光を使い measurement ベースでレンダリングをする優れた技術を持っているので、今後フランス側との共同研究に発展することを期待しています。その際は、両方の研究室に関わった自分が軸になれるように頑張りたいと思っています。

Web: [Luminohope.org](http://Luminohope.org)



15<sup>th</sup>  
INTERNATIONAL  
MEETING AND CONFERENCES  
ON VIRTUAL REALITY  
AND CONVERGING  
TECHNOLOGIES

LAVAL  
VIRTUAL

20-24  
MARCH  
2013  
LAVAL (FR)

[www.laval-virtual.org](http://www.laval-virtual.org)

## Laval Virtual and IVRC History

Cooperation between Laval Virtual and IVRC begun in 2003

Sharing demonstrations between France and Japan for the mutual promotion of Virtual Reality and Knowledge



Ants in the  
pants (2008)



Yotaro (2009)



Column Gear (2010)



Jory Jory (2011)



Petanko Roller (2012)

**Winner  
2013  
???**



15<sup>th</sup>  
INTERNATIONAL  
MEETING AND CONFERENCES  
ON VIRTUAL REALITY  
AND CONVERGING  
TECHNOLOGIES

LAVAL  
VIRTUAL

20-24  
MARCH  
2013  
LAVAL (FR)

[www.laval-virtual.org](http://www.laval-virtual.org)

# Laval Virtual and IVRC

## Laval Virtual Awards at IVRC

Winner of Laval Virtual Award in IVRC will be announced during IVRC 2012 Tokyo final Stage.

A team (3 members) will be invited for Laval Virtual 2013

- round-flight tickets, train
- hotel
- food

20th to 24th March in 2013

Professional 3 days + Public 2 days

Best testing place of your innovation ☺



# History of Laval Virtual, 15 years and more

- Laval Virtual was created in 1999. The idea of the project was launched by Mr François d'Aubert, Mayor of Laval at this time, and former French Minister of Research and Industry. The main idea of Laval Virtual was to create an event gathering professionals (users, manufacturers, scientists...), students and general public.

Laval Virtual was the first step of a more important project. This project was to make Laval a pole of excellence in VR, with the creation of Laval Mayenne Technopole, CLARTE, some companies, laboratories, high-school education...

## History of Laval Virtual ReVolution

- First edition was in 2006. I've attached a complete list of ReVolution winners from 2006 to 2012. Some details are missing for edition 2006 and 2008.

## Collaboration with ACM

- Since 2005, with ACM, we have an in-cooperation agreement (TMRF)
- Since 2006, with ACM Siggraph, we have signed a Cooperation Agreement (Space exchange, complimentary registrations, promotion exchanges)
- Since 2006, with E-Tech, we have signed a Memorandum of Understandings, for demos exchanges.

Powder Screen Robogamer 3 SUIRIN Transparent Cool Wet-Free Water ReVolution 2007 Accepted Class "Invited" LivePic - Keio University (Japan)  
 BodyRevolution – National Taiwan University (Taiwan) Shared Design Space - Digital Media, Upper Austria University of Applied Sciences (Autriche)  
 Interactive Fountain – JAIST (Japan) Globe4D – Globe 4D (Pays-Bas) Accepted Class "Welcome" Tiny Dancing Robots: Display-Based  
 Computing for Multi-Robot Control System - University of Electro-Communications (Japan) Chronospheria - Tama University (Japan) CREATURES  
 Thermoesthesia - Kumiko KUSHIYAMA, Shinji SASADA (Japan) Freqtric Drums: A Musical Instrument that Uses Skin Contact as an Interface - Tetsuaki  
 Baba, Kyushu University (Japan) Come Over Here, or Catch You! – NTT (Japan) Virtual Fencing - Escrime Virtuelle – P&I Lab. (France) Goemon:  
 Spiritual Forces Visualization – P&I Lab. (France) Class "special encouragement for student project" A Sand-Create – Gifu University (Japan) ReVolution  
 2008 Accepted Class "Invited" Comino Ant in the Pants Popping-Pump BYU-BYU-View: A Wind Communication Interface Kagekami Accepted Class  
 "Welcome" MOVE NRC Experience Systems Digital Rubbing Sound Quest "L'Oreiller Rêveur" ("The Dreaming Pillow") Phantasm Magnetosphere  
 Another photosharing application built on IntuiFace Morpho Towers / Two Standing Spirals ReVolution 2009 Accepted Class "Invited" YOTARO,  
 University of Tsukuba LevelHead, N/A Copycat Hand for All, University of Tsukuba Space Trash, Institute of Graphics and Parallel Processing, JKU, Linz  
 Accepted Class "Welcome" Babbage Cabbage, Mixed Reality Lab, National University of Singapore Thermotaxis, Yonakani Musical "gugugugu" and "A~",  
 Otobane Project LightTwist, Laboratoire Vision3D La flèche de l'odeur, Kanazawa Technical College Catopsys project, University of Auvergne BrickLayer,  
 Kyoto University Joystick everywhere, University of Tsukuba Scoop-and-Release, Tama University Good-bye feet!, University of Tokyo and Tokyo  
 University of the Arts Surrounding of Firefly, The University of Electro-Communications Laval VRchive, Tokyo Metropolitan University / Photon, Inc  
 ReVolution 2010 Accepted Class "Invited" PhotoelasticTouch: Transparent Organic User Interface using Photoelasticity, The Univ. of Electro-  
 Communications (Japan) CRISTAL - Control of Remotely Interfaced Systems using Touch-based Actions in Living spaces, Media Interaction Lab (Austria)  
 Spider Hero, Japan Advanced Institute of Science and Technology, Arts et métiers ParisTech (Japan and France) JishoDesk, Tama University / ESIEA  
 (Japan and France) ColumnGear, Toyohashi University of Technology Accepted Class "Welcome" Haptic Canvas, BioImaging Laboratory, Osaka  
 University (Japan) Pull-Navi, The University of Electro-Communications (Japan) Bubble Click, Sony CSL (Japan) Development of a pregnancy experience  
 system "Mommy Tummy", Kanazawa Technical College and Kanazawa Institute of Technology (Japan) Camera-less Smart Laser Projector, Ishikawa  
 Komuro Laboratory – the University of Tokyo (Japan) Air-Hair, Tokyo Institute of Technology SSR (Japan) ProFORMA: Probabilistic Feature-based On-  
 line Rapid Model Acquisition, Cambridge University (United Kingdom) 3D Input Interface for Mobile Devices, University of Tokyo (Japan) Tiny Dreamy  
 Stories, University of Tokyo (Japan) ARPool, Queen's University (Canada) AR-View: An Augmented Reality Device for Digital Reconstruction of Historical  
 Sites, Beijing Institute of Technology (China) Tuvalu Visualization Project (4K UHD version), Graduate School of System Design, Tokyo Metropolitan  
 University (Japan) Immersive Music Painter, Université Technologique de Compiègne (France) Tactile mushroom, University of Tsukuba (Japan) A Note  
 of Sparking, Graduate School of Interdisciplinary Information Studies, University of Tokyo (Japan) Future Footsteps, The University of Tokyo (Japan)  
 Scritter , Tokyo Institute of Technology (Japan) ReVolution 2011 « Invited Class » Hinoco, Toyohashi University of Technology (Japan) Jory Jory,  
 Graduate School of Information Science and Technology, Osaka University (Japan) Sense-roid, The University of Electro-Communications (Japan) The  
 Interactive Tops, The University of Electro-Communications (Japan) « Welcome Class » Bird-Call Window, Tokyo Denki University (Japan) Biri-Biri, Meiji  
 University (Japan) CartooNect, KAIT Shirai Lab (Japan) CASMCam, Tama University (Japan) Ether Synthesizer, Roomoot (Japan) Forward To The Past,  
 Ville de Rennes (France) Invoked Computing, The University of Tokyo (Japan) Keyhole ?, Tokyo Interaction Center (Japan) Mr Spintop, Kanagawa  
 Institute of Technology (Japan) Sound Forest, Graduate School of Media Design, Keio University (Japan) Touchable 3D Television System, National  
 Institute of Advanced Industrial Science and Technology (AIST) (Japan) ReVolution 2012 « Invited Class » ClaytricSurface, Koike Laboratory, The  
 University of Electro-Communications (Japan) ePawn Arena, ePawn (France) MoleBot, Design Media Lab, KAIST (Korea) Petanko Roller, Kakehi Lab,  
 Keio University" (Japan) What a Loving, and Beautiful World, TEAM-LAB (Japan) « Welcome Class » Ethereal Flashcards, Tama University, Idehara  
 Laboratory (Japan) Haptic Duplicator, Tachi Lab, Keio University (Japan) Neu, Marco Marchesi (Italy) PARAOKE, KAIT, Kanagawa Institute of  
 Technology (Japan) RV-BorderGuards3, Ritsumeikan - Ohshima Lab (Japan) Silent Humming, Inami Lab, Keio University (Japan) smoon, JST Agency,  
 ERATO, IGARASHI Design UI Project, Inami Lab. (Japan) SplashDisplay, Koike Laboratory, The University of Electro-Communications (Japan)  
 TECHTILE toolkit, Tachi Lab, Keio University (Japan)

15<sup>th</sup>  
INTERNATIONAL  
MEETING AND CONFERENCES  
ON VIRTUAL REALITY  
AND CONVERGING  
TECHNOLOGIES

# LAVAL VIRTUAL

20>24  
MARCH  
2013  
LAVAL (FR)

[www.laval-virtual.org](http://www.laval-virtual.org)

**Laval Virtual Revolution is:**

**One of the final goal of IVRC projects,  
The most close way to SIGGRAPH  
Emerging Technology 2013,  
And « the another world » for USA  
and Japanse VR researchers**

**Further information on:**

<http://www.laval-virtual.org/revolution>

DEADLINE WILL BE MID OF JANUARY

**THEME:**

**The NEXT BIG STEP**

(=not as a small technical demo!)

Conclusion at the final page

We should enjoy  
the difference between  
Japanese and French,  
not as stressing 😊

Thanks for your participation!

Akihiko SHIRAI shirai@mail.com