Module :3D & Augmented reality

"*AUGMENTED REALITY: GENERAL INTRODUCTION*"
Definition - History - Applications - Opportunity - R&D

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Plan

- ***I. Introduction: Definition & History***
- ***II. Applications***
- ***III. Opportunities of RA***
- ***IV. References***

introduction:
Context of the course in relation to my work

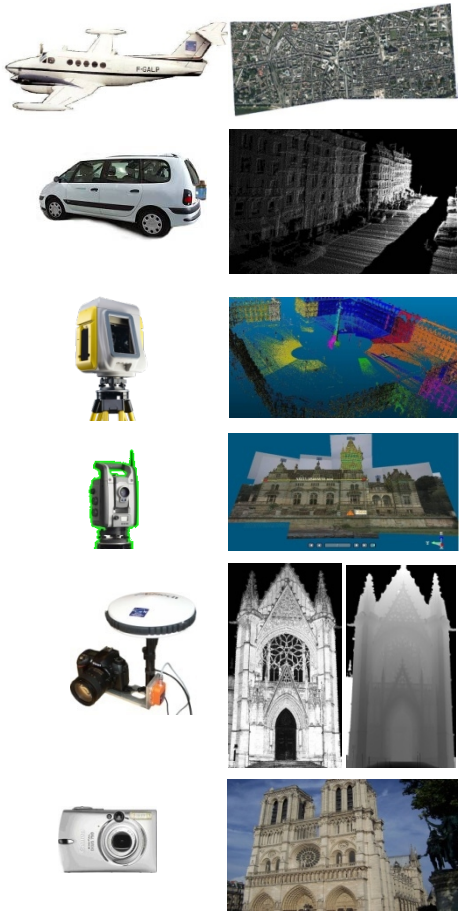
TerraNumerica

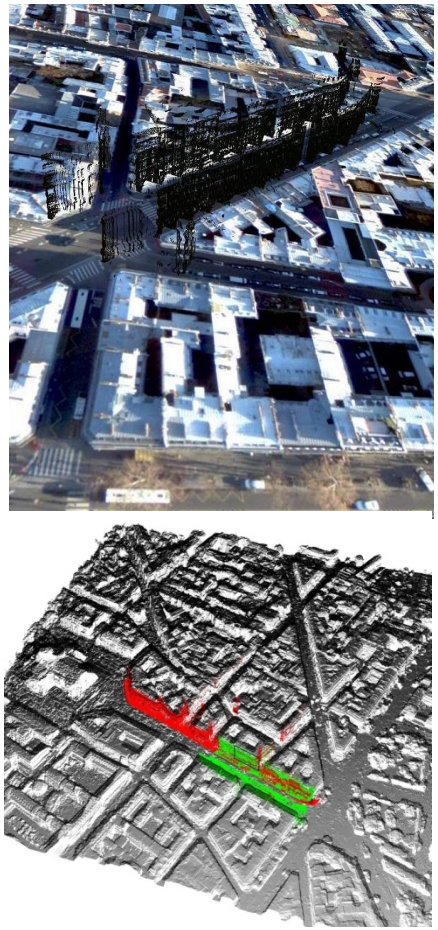
Context: FUI - Cap Digital

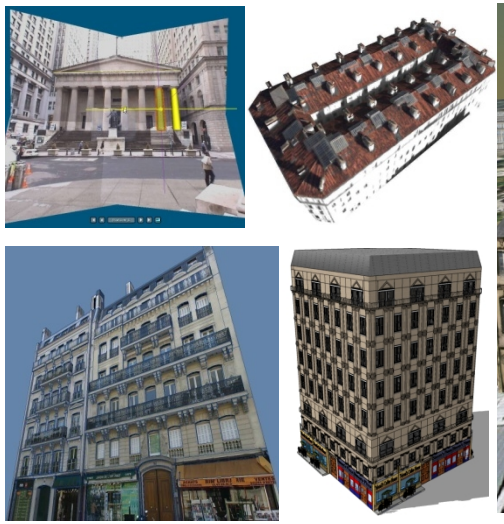
Nature of Project: Research Project - Virtual Reality - Augmented Reality - Mobility – Internet
THALES - IGN -Star Apic - Mondeca - ArchiVideo - Mensi Trimble - TECDEV - Hyptique - Institut Telecom
Centrale Paris - Ecole des Mines - INRIA - Bionatics - CITU - LEDEN - UMLV
Cap Digital - région IDF - CG 77 - 78 - 92 - 93 - 94 - 95

Production Technologies Development

Acquisition Technology	Registration/Filtering Technology	Reconstruction Technology	Integration Technology







⇨ Production Plateforms

TERRANUMERICA

cap·digital Paris Region

Développement des Technologies d'exploitation

Virtual reality (RV)

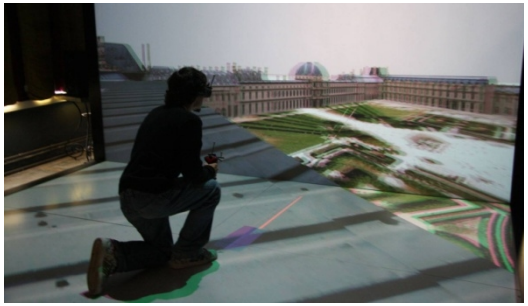
3D Real time rendering

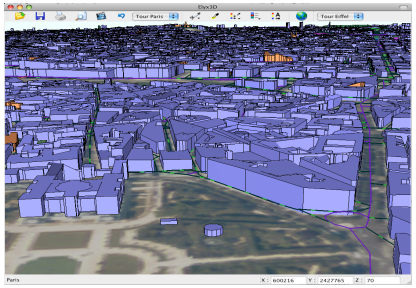
Augmented reality (RA)

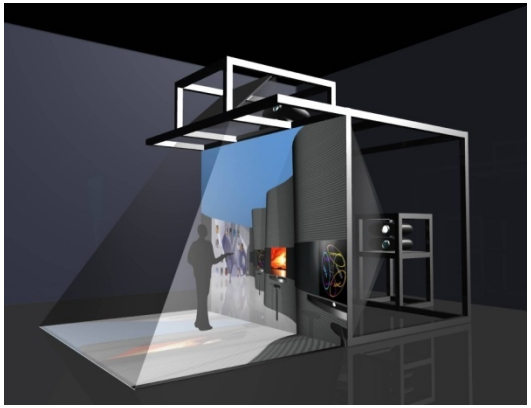
Encoding technology Compression - Transmission

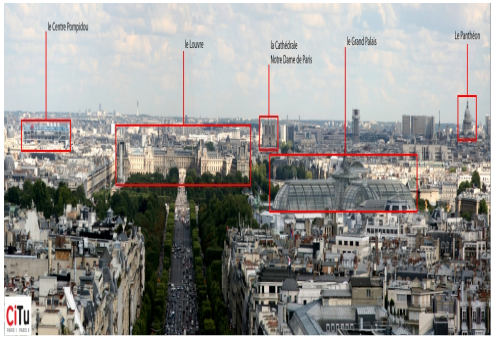
remote rendering

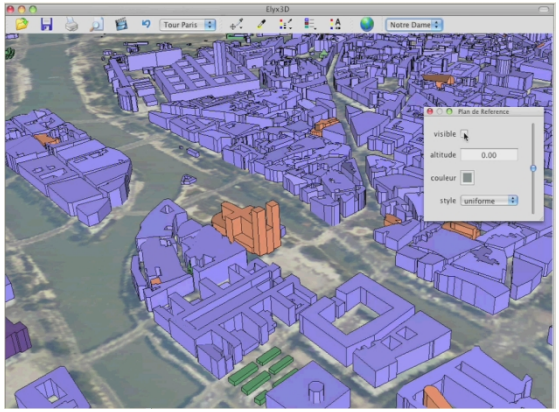
Embedded rendring











⇨ *Visual operating platforms*

TERRANUMERICA

cap·digital Paris Region

TerraDynamica

Axe: behavioral models inside the city

Context: FUI - Cap Digital - Aid 4M€

Project type: R&D – Virtual Reality – Augmented reality - Mobility - Internet
THALES - CITU - LIP6 - Davi - BeTomorrow - CNAM - IFSTTAR - - Star Apic
Cap Digital - Advancity- IDF - PARIS - CG 78 93 - 94 - 95

Public transport :
- bus
- ...
- ...

Trafic :
- cars
- ...

signal lights
- ...
- ...

persons :
- isolated preditrian
- group of person
- ...

LeSAS de RÉALITÉ VIRTUELLE

http://www.youtube.com/watch?v=7rJs0X6mxO8#t=351

LA VISITE DU MODÈLE EN SITUATION

Introduction: Definition & History

Introduction : Definition

Between reality and the virtual world is the field of "augmented reality".

One of the video image as it is perceived by the brain which are superimposed graphic and text information.

Ref : http://www.futura-sciences.com/magazines/high-tech/infos/dico/d/high-tech-realite-augmentee-3963/

Introduction : Definition

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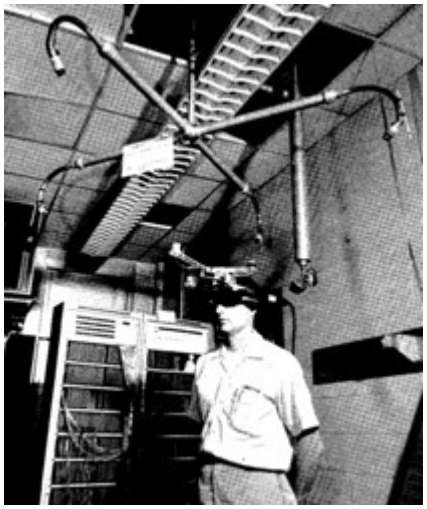
Introduction : History

1968

First machine



First machine; (transparent vision helmet)
casque à vision transparente

I. Sutherland, “A Head-Mounted Three Dimensional Display”, Proceedings of Fall Joint Computer Conference, 1968, pp. 757-764.

Introduction : History

1968 — First machine

1994 — RA definition

« RA Definition » Paul Milgram & Fumio Kishino

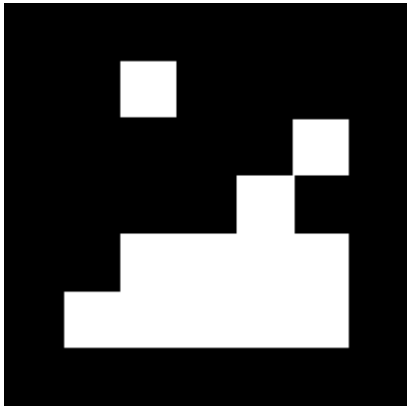
P. Milgram and F. Kishino, "Taxonomy of Mixed Reality Visual Displays", IEICE Transactions on Information and Systems, 1994, pp. 1321-1329.

Introduction : History

1968 — First machine

1994 — RA definition

1996 — 2D markers



2D matrix markers :
Jun Rekimoto

Rekimoto, J. (1996). Augmented Reality Using the 2D Matrix Code. In Proceedings of the Workshop on Interactive Systems and Software (WISS'96).

Introduction : History

1968	1994	1996	1997
First machine	RA definition	2D markers	State of the art

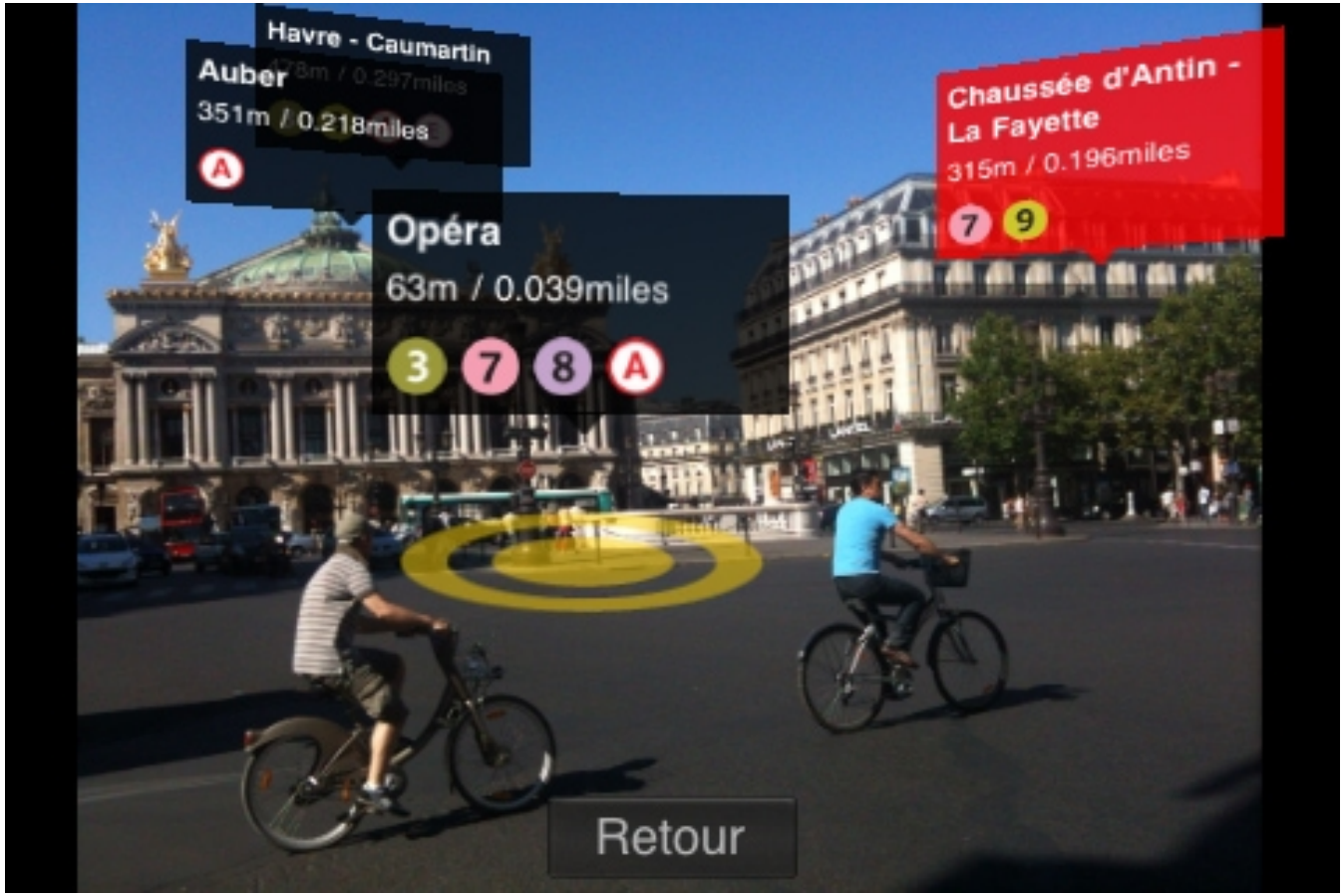
R. Azuma, “A survey of augmented reality”, Presence: Teleoperators and Virtual Environments, 1997, pp. 355–385.

Introduction : History

1968	1994	1996	1997	20XX
First machine	RA definition	2D markers	State of the art	Application Mobile, etc…

RA Applications

Applications : Local services; City ride



Applications : Local services : parking aid

http://www.mecatran.com/fr/services/augmented-reality

Local service: flats visit

http://www.meilleursagents.com/iphone/

Applications: Professional service: architecture

http://www.artefacto.fr/services/realite-augmentee/

Applications: Service professionals: automaker

http://www.mines-paristech.fr/Recherche/Chaires-industrielles/PSA-Peugeot-Citroen-Robotique-et-realite-virtuelle/

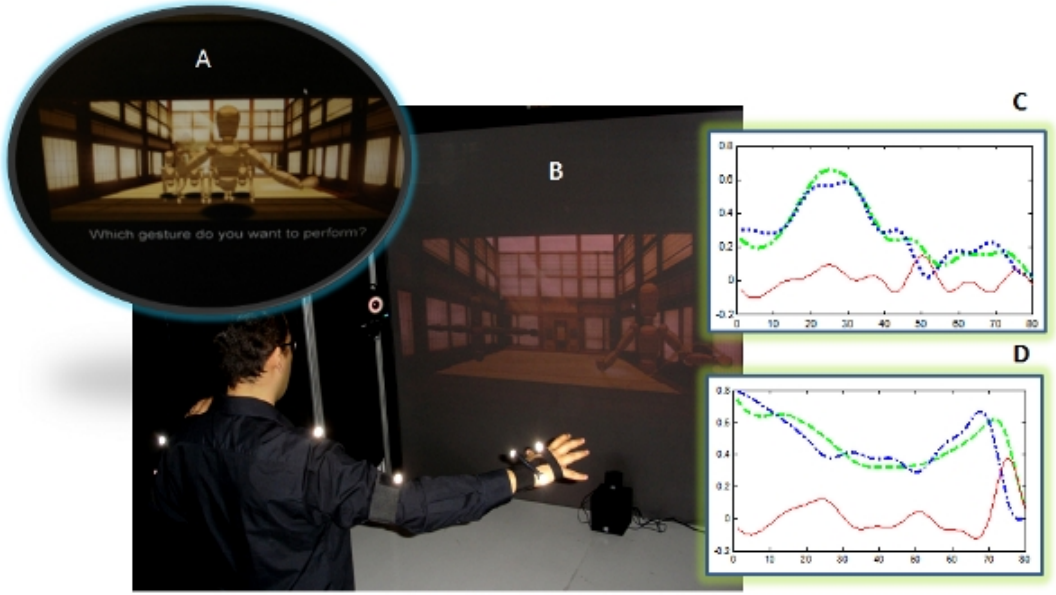
Applications: Education: pedestrian licenses

www.terradynamica.com
www.taha-ridene.com/publications

Applications: Assistance to Firefighters

http://www.arfy.fr/

Applications: Tutor "Tai Chi"



http://www.comp.dit.ie/fyp/?p=16

Applications: Telemedicine: surgical simulation

http://www.lepoint.fr/futurapolis/sante/chirurgie-du-reve-a-la-realite-augmentee-24-10-2011-1388254_431.php

Opportunities of RA

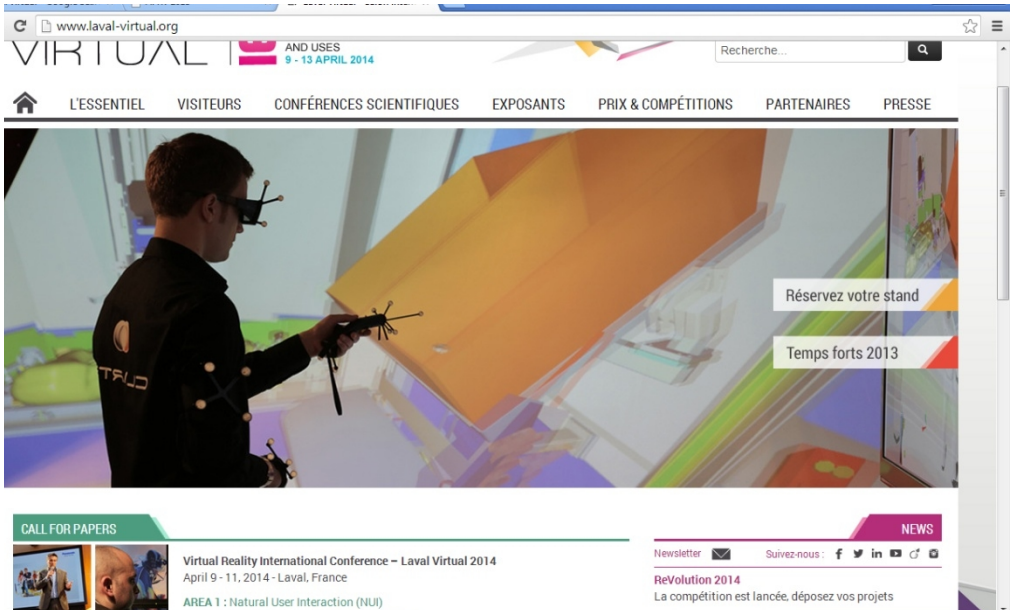
Opportunities RA: examples in France

Thales Training & Simulation

Dassault System

CEA

http://afrv2013.laval-virtual.org/



http://www.laval-virtual.org

http://trends.levif.be/economie/actualite/high-tech/5-idees-pour-integrer-la-realite-augmentee-a-votre-marketing/article-4000031299923.htm

References

Reference

“Le traité de la réalité virtuelle” Philippe Fush

I. Sutherland, “A Head-Mounted Three Dimensional Display”, Proceedings of Fall Joint Computer Conference, 1968, pp. 757-764.

P. Milgram and F. Kishino, "Taxonomy of Mixed Reality Visual Displays", IEICE Transactions on Information and Systems, 1994, pp. 1321-1329.

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R. Azuma, “A survey of augmented reality”, Presence: Teleoperators and Virtual Environments, 1997, pp. 355–385.

www.vrpn.com
http://www.futura-sciences.com/magazines/high-tech/infos/dico/d/high-tech-realite-augmentee-3963/
http://www.mecatran.com/fr/services/augmented-reality
http://www.meilleursagents.com/iphone/
http://www.artefacto.fr/services/realite-augmentee/
http://www.mines-paristech.fr/Recherche/Chaires-industrielles/PSA-Peugeot-Citroen-Robotique-et-realite-virtuelle/
www.terradynamica.com
www.terranumerica.com
www.citu.fr
www.taha-ridene.com/publications
http://www.arfy.fr/
http://www.comp.dit.ie/fyp/?p=16

Thank you for your attention