



Premières Rencontres Internationales
de la Réalité Virtuelle de Laval

COLLOQUE SCIENTIFIQUE INTERNATIONAL

Réalité Virtuelle et prototypage

3 - 4 juin 1999, Laval, France

ACTES

Éditeur : Gérard Subsol

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EDITORIAL

Laval et la Mayenne ont enfanté dans le passé des hommes qui furent, chacun en leur temps, des innovateurs qui marquèrent les générations suivantes (Ambroise Paré, Henri Rousseau, Alain Gerbault).

Comme leurs ancêtres, les Lavallois d'aujourd'hui sont des innovateurs. C'est pourquoi ils ont souhaité promouvoir un grand projet associant, autour de la Réalité Virtuelle, les entreprises, l'enseignement supérieur, la recherche et le grand public.

Il est illusoire de vouloir répéter à l'identique ce qui s'est fait ailleurs avec des moyens inaccessibles à notre département. C'est en partant de ce constat que nous avons choisi de centrer ce projet sur la Réalité Virtuelle car nulle part ailleurs cette technique est abordée sous l'angle culturel, récréatif, éducatif et industriel.

Quand on est petit et peu connu, voire méconnu - car il est méconnu que la Mayenne est une terre d'innovation dans le domaine du multimédia - il est important de communiquer à l'occasion d'un événement tel que les Rencontres Internationales de la Réalité Virtuelle et d'accueillir en son sein des spécialistes de renommée mondiale au cours du Colloque Scientifique International des 3 et 4 juin 1999.

C'est pourquoi la ville de Laval s'est pleinement engagée dans l'organisation de cette manifestation dont nous espérons qu'elle correspondra à votre attente. Je remercie tous les partenaires, tant publics que privés qui nous ont aidés dans ce projet et je souhaite la bienvenue, au nom de tous les Lavallois, aux participants des Premières Rencontres Internationales de la Réalité Virtuelle.

François d'Aubert

General Presentation

Virtual Reality can be defined as a set of hardware and software tools that permits the realistic simulation of an interaction with virtual objects, which are computer models of real objects.

Most often, we take an existing object, whose size can range from a molecule to a factory, and we create a virtual version. Nevertheless, it is also possible to reverse the concept, and to use *Virtual Reality* to materialize an idea. For example, an architect or an engineer is able to display on their computer a project of a building or a mechanical part and to interact with this *virtual prototype*.

The international scientific workshop of the Laval International Virtual Reality Meeting, co-organized by the French Virtual Reality Working Group (PRC ALP-AFIG, I3, ISIS - CNRS / Ministry of Education, Research, and Technology), with the scientific support of INRIA (French National Institute for Research in Computer Science and Control), will gather researchers from the academic and industrial communities to expose new methods, to show the latest scientific results, and to exchange ideas and information about the use of *Virtual Reality* for prototyping.

The workshop addresses the following topics:

- How to acquire data from reality.
- How to create a *virtual prototype*. How to model the geometry, physical, and mechanical behaviour. How to deal with models in real time.
- How to interact with the *virtual prototypes*. Which of the senses –vision, hearing, touch– and which interfaces to use. What are the ergonomical constraints. How to interact in real time.
- How to create and interact with a *virtual prototype* in groups.
- Does the *virtual prototype* correctly simulate the reality. Is it possible to compare a *virtual prototype* with a classical industrial prototype.
- What are the applications of *virtual prototypes*.
- What virtual prototyping will change in the factory organization.

A special session is dedicated to the topic of Force and Tactile Feedback Interfaces that allow for the design of and interaction with virtual prototypes.

The program of the workshop is composed of:

- two 1-hour keynote presentations given by international experts of Virtual Reality: *Virtual Reality and Prototyping* by Roy Kalawsky and *Haptic Feedback for Virtual Reality* by Grigore Burdea.
- two 45-minute state-of-the-art presentations on image synthesis and application programming interfaces proposed by specialists of AFIG (French Association on Computer Graphics) and CNET/France Telecom,
- sixteen 25-minute scientific talks selected by the international program committee.

We would like to thank the Organization Committee for their helpful advice and for the difficult review work. This international scientific workshop exists thanks to the help and the sponsorship of the Laval Virtual Reality International Meeting.

We hope that this international scientific workshop will be an exciting meeting and moreover, that it will give rise to new research ideas for future conferences!

Gérard Subsol
EPIDAURE Project, INRIA
Sophia Antipolis, France

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