

## **Post-doctoral position:**

### ***“Pseudo-Haptic Interactive Techniques with 2D or 3D Web Content”***

**1-year post-doctoral position** is open at INRIA (National Institute of Research in Computer Science and Control), Rennes, France (salary=2606,80 Euros/month before taxes), under the supervision of Dr. Anatole Lécuyer.

The project is in the areas of *Interactive Techniques, Human-Computer Interaction(HCI), Haptic and Pseudo-Haptic Interfaces*. It is meant to improve interaction with web content and internet 2D or 3D applications. It is in the frame of a 2-year collaborative French project involving French SMEs and academic partners. Regular meetings and exchanges with external partners are therefore expected for the postdoctoral candidate.

The post-doctoral program aims at designing and testing novel interactive techniques with web content inspired by pseudo-haptic concept. Pseudo-haptic feedback is a technique meant to simulate haptic sensations using visual feedback and properties of human visuo-haptic perception (on-line demonstrations here at: <http://www.irisa.fr/tactiles/>). Pseudo-haptic feedback uses vision to distort haptic perception and verges on haptic illusions. Pseudo-haptic feedback has been used to simulate various haptic properties such as the stiffness of a virtual spring, the texture of an image, or the mass of a virtual object (see bibliography section).

In this postdoctoral work, the candidate will investigate the adaptation of the pseudo-haptic scheme in the field of internet navigation. It is expected that pseudo-haptic effects will bring novel tactile sensations when browsing 2D or 3D web content. A series of experiments with participants will be conducted to evaluate the various proposed techniques.

The candidate must have a PhD and excellent background in either: HCI, 3D user interfaces, haptic interfaces or other relevant topics. Knowledge in designing and conducting experimental studies is a prerequisite.

Interested candidates should send CV, selected publications and names and addresses of three references to Dr. Anatole Lécuyer (contact information bellow).

**On-Line demos of Pseudo-haptics :** <http://www.irisa.fr/tactiles/>

#### **Bibliography :**

- A. Lécuyer, “Simulating Haptic Feedback using Vision: a Survey of Research and Applications of Pseudo-Haptic Feedback”, Presence: Teleoperators and Virtual Environments, MIT Press, Vol. 18, Issue 1, pp. 39-53, 2009
- A. Lécuyer, J.M. Burkhardt, L. Etienne, "Feeling Bumps and Holes without a Haptic Interface: the Perception of Pseudo-Haptic Textures", ACM SIGCHI Conference on Human Factors in Computing Systems (ACM CHI), Vienna, Austria, 2004
- A. Lécuyer, S. Coquillart, A. Kheddar, P. Richard and P. Coiffet, "Pseudo-Haptic Feedback : Can Isometric Input Devices Simulate Force Feedback?", IEEE International Conference on Virtual Reality (IEEE VR), New Brunswick, US, 2000

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