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La Funambule virtuelle, Michel Bret, Marie-Hélène Tramus, Alain Berthoz

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- 1 With *La Funambule virtuelle*¹ [*The Virtual Funambulist*] (2000-2006), we aimed at creating a new conception of interactivity that we call “second interactivity,”² which puts into play relationships, with virtual entities, but also with intuitive behaviors that come close to that of humans, thanks to models stemming from cognitive sciences.³
- 2 The idea was to interact with a virtual funambulist through the use of position and rotation sensors installed on a rocker arm, which the user could manipulate so as to off balance the walker. “The small brain,” composed of a few hundred artificial neurons, of the acrobat—which underwent preliminary learning processes—allowed it to develop a strategy to get back in balance on its own and in real time.
- 3 Auto-configuring neuron networks, appeared suitable for this interaction experiment with a virtual creature, by giving it the ability to display emerging behaviors. From only a few examples learned on how to get its balance back, and through the generalization capacity of the neuron networks, new unlearned gestures could emerge, allowing the funambulist to restore its balance on its own.
- 4 A duel between a real live funambulist and a virtual one also occurred. The first tried to throw off balance the virtual character, which, through its learning, developed real-time strategies to restore its balance. New attempt to unbalance, new recovery, and so on. The virtual walker gave the illusion of being a living entity: it did not make the same movement twice, it could, to some extent, improvise; it created surprise by showing new unlearned gestures, thus rekindling the dialogue. Between learning and adaptation, a space opened for gestural invention suitable to artistic creation.
- 5 If, through the autonomy granted to virtual creatures, the artist loses some control over his art, he gains the possibility to get out of himself, by allowing the virtual being to surprise them through its capacity to interact and improvise. This creative approach favors what will occur during the free dialogue, between the spectator and the virtual

entity. If the work is the result of their interactions, then doesn't it not become a co-creation, shared by author, spectator and virtual entity?

- 6 Experiences on the funambulist's paradigm have been carried on by Bérangère Thirioux, Gérard Jorland and Alain Berthoz in order to study shifts in point of views in sympathy and empathy.⁴

<http://www.archives-video.univ-paris8.fr/video.php?recordID=229>

Fig. 1

© Michel Bret, Alain Berthoz and Marie Hélène Tramus.

Fig. 2

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NOTES

1. Project created by Michel Bret and Marie-Hélène Tramus in collaboration with Alain Berthoz as part of the program *ACI Cognitive 2000: Art et cognition*, a ministry of research program. It was displayed in several exhibitions: *Virtual World 2000*, Paris, 2000; *Salon d'automne*, Paris, 2000; *Les chemins du numérique*, Reims, 2001; *Le cube s'ouvre à Issy les Moulineaux*, exposition d'art numérique, 2001; *Festival d'art numérique de Barbizon*, in July 2003. *Les Emagiciens*, Valenciennes, in 2004. *Les 20 ans d'ATI*, exhibition at the Centre des Arts d'Enghien, December 2005; exhibition of the third *Biennale internationale de l'art technologique*, Centre Culturel ITAU, Sao Paulo, Brazil, 22 July 2006.

2. Edmond Couchot, Marie-Hélène Tramus and Michel Bret, "A segunda interatividade. Em direção a novas práticas artísticas" in *Arte e vida no século XXI, Tecnologia, ciência criatividade*, São Paulo, Unesp, 2003.

3. Michel Bret, Marie-Hélène Tramus and Alain Berthoz, "Interacting with an intelligent dancing figure: artistic experiments at the crossroads between Art and Cognitive Science," *Leonardo*, no. 38.1, 2005, p. 46-53.

4. Bérangère Thirioux, Gérard Jorland, Michel Bret, Marie-Hélène Tramus and Alain Berthoz, "Walking on a line: A motor paradigm using rotation and reflection symmetry to study mental body transformations," *Brain and Cognition*, vol. 70, no. 2, 2009, p. 191-200.