The Virtual Humans Story

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In the early 1980s, we developed MIRA, one of the first abstract data-type languages for graphics and a forerunner of modern object-oriented languages. MIRA was designed to facilitate the animation of virtual worlds and 3D characters. Despite its apparent antecedents in Latin and Romance words relating to vision, the language was actually named after our dog. More recently, our dog has been commemorated in MIRALab, the first author's lab in Geneva. Using the MIRA software, we have pursued our goal of synthesizing human figures, which we call "virtual humans." In this essay, we will briefly recall some social moments of our research.In 1982, in collaboration with Philippe Bergeron, we produced Dream Flight, a film depicting a person (in the form of an articulated stick figure) transported over the Atlantic Ocean from Paris to New York. This film won several awards, including first prize at the Online Conference in London. The government of Quebec, Canada, was so proud of us three Quebecers that Rene Levesque and his government ministers interrupted the proceedings of the National Assembly to telephone their congratulations to us at the University of Montreal.

In l987, the Engineering Society of Canada celebrated its 100th anniversary. A major event was planned for the Place des Arts in Montreal. The main sponsors, Bell Canada and Northern Telecom, were interested in simulating Alexander Graham Bell in a sequence that would showcase both high-tech and art in Canada. Instead, we proposed depicting figures with a wider appeal. Eventually, the idea emerged to simulate Marilyn Monroe and Humphrey Bogart meeting in a cafe in the old town section of Montreal. The development of the software and the design of the 3D characters (now capable of speaking, showing emotion, and shaking hands) became a full year's project for a team of six. Finally, in March l987, the actress and actor were given new life as virtual humans.

The virtual Monroe and Bogart are now 10 years old. Monroe has acquired a degree of independent intelligence; she even plays the autonomous role of a referee announcing the score of a real-time simulated tennis match on a virtual court, contested by the 3D clones of two real players situated as far apart as Los Angeles and Switzerland.

During the 1980s, the academic establishment paid only scant attention to research on the animation of virtual humans. Today, however, almost every graphics journal, popular magazine, or newspaper devotes some space to virtual characters and their applications. Hundreds of researchers work in the area, and all manner of situations are being simulated. During the years when we worked out of the mainstream, we persevered because of the widespread public appeal of our topic and the satisfaction of following our own vision.

Nadia Magnenat Thalmann and Daniel Thalmann have developed numerous techniques for modeling and animating human figures. They have published and lectured widely. Presently, Nadia Magnenat Thalmann directs the MIRALab in Geneva, and Daniel Thalmann is with the Computer Graphics Lab of the Swiss Federal Institute of Technology.

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