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Will Spiritual Robots Replace Humanity by 2100? (review)

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## CONFERENCE REVIEW

### **WILL SPIRITUAL ROBOTS REPLACE HUMANITY BY 2100?**

Stanford symposium organized by  
Douglas Hofstadter, 1 April 2000 at  
Stanford University, Palo Alto, CA,  
U.S.A. WWW: <[http://  
www.stanford.edu/dept/symbol/  
Hofstadter-event.html](http://www.stanford.edu/dept/symbol/Hofstadter-event.html)>; <[http://  
www.psych.indiana.edu/cogsci/  
hofstadter.html](http://www.psych.indiana.edu/cogsci/hofstadter.html)>.

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Warning: Let it be known that I did not attend this symposium. That being the case, it seemed to me that the views of various principals following the discourse, drawn primarily from e-mail and telephone conversations with them, would provide a meaningful context within which to consider the accounts posted on numerous websites. In 1999, two scientists, Ray Kurzweil and Hans Moravec, independently released serious books proclaiming that in the

coming century, our own computational technology will outstrip us intellectually and spiritually. Computers will become not only deeply creative but deeply emotive, thus usurping us humans from our self-appointed position as “the highest product of evolution.”

Where will it all lead? Will we pass the spiritual baton to software “minds” that will swim in virtual realities of a thousand sorts that we cannot even begin to imagine? For this conference, Douglas Hofstadter amassed a panel of luminaries encompassing the expertise in all the areas concerned, including Kurzweil and Moravec, to treat these disorienting themes with the seriousness they deserve at the dawn of the new millennium.

The first speaker was Ray Kurzweil, whose most recent work, *The Age of Spiritual Machines* (see my review in *Leonardo* 33, No. 3, 2000), details the basis of his exuberance over future technologies. Interestingly, in a recent review of Kurzweil’s book for the *Toronto Globe and Mail*, Hofstadter wrote:

It is facile to make an analogy between the onrushing tidal wave of computer power and the rising waters of computer chess-playing power that eventually engulfed Kasparov and to assert that, just as the chess naysayers were promptly drowned when that thunderous deep blue wave finally hit the sandy beach, so too, the “sentient silicon” naysayers will be swiftly squashed when today’s barely audible “artificial intelligence wave” has grown and grown and finally hits with full force, in 20 or 30 years. But life is not a chess game. Life has no rules, no fixed goals, no clean categories; quite the contrary, life consists of thousands of simultaneously and intricately interacting hopes, fears and dreams.

Much of the cause of the overflow crowd at the symposium may have been the inclusion on the panel of such luminaries as Bill Joy, Sun Microsystems co-founder and chief scientist, especially in light of his recent article, “Why the Future Doesn’t Need Us” (see <<http://www.wired.com/wired/archive/8.04/joy.html>>). The article has been likened by some to the misgivings articulated a generation ago by Robert Oppenheimer to then-U.S. President Harry Truman, but characterized in less favorable terms by others. Randall Stross wrote about the article under the banner, “Silicon Valley Kill-joy” (see <<http://www.usnews.com/usnews/issue/000403/tech.htm>>).

Also on the panel was nanotechnologist Ralph Merkle, who provided the

most compelling counterpoint to Bill Joy’s concerns. His opening remarks are posted on the Zyvex site (see <<http://www.zyvex.com/nanotech/talks/stanford000401.html>>). Perhaps the most interesting result of the discussion, at least from the perspective of the speakers, was that few opinions really changed. Indeed, Merkle e-mailed a week later, “No great insights, other than the observation that the ideas and concepts discussed have roots that go back decades. It’s not clear why people are taking these issues more seriously now (as opposed to last year, or a decade ago, or a decade hence).” Ray Kurzweil is writing an article on the symposium for *Wired*.

In light of this, what are we to make of the diversity of opinion on the implications of tomorrow’s technologies—between Kurzweil’s optimistic outlook and Bill Joy’s near-threnodic trepidation? The words of Vincenzo Pezzi, speaking of “The Man Behind the Gun,” come to mind. Pezzi pointed out that, in solving the problems associated with producing the best possible bassoon tone, “one should always look at the bocal before the bassoon, at the reed before the bocal and at the player before the reed!” In other words, technology in and of itself—from the caveman’s earliest lever to innovations yet to be envisioned—is neutral; no more evil nor benevolent than the use for which it is employed.

As Arno Penzias put it, “In the long run, technology makes us what we are already, only more so. Lazy people will be lazier, smart people will be smarter. Moving data faster does not really enter into it. It is like speeding up in a car when you are lost; the result usually just enables you to get lost over a wider area.”