

AU professor says we need to go 'Beyond Bioethics'

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"Medusa is in the house." That doesn't sound like a scientist speaking, but Professor Alan H Goldstein, director of Alfred University's Biomedical Materials Engineering Science Program, in an article published in Salon.com, an online magazine with a wide readership, argues that it is "time for us to broaden the bioethics debate to include areas such as nanotechnology and materials science." Goldstein's article, "Invasion of the high tech body snatchers" has just been published in Salon.com, an online magazine with a wide readership. (see <http://www.salon.com/tech...>) "While I make it clear that I am speaking as a private citizen, my thinking can't help but be informed by my professional activities." says Goldstein "The article, 'Invasion of the high-tech body snatchers,' was originally entitled 'Beyond Bioethics.' But I wrote it to get the attention of the public and perhaps making it a little scary will help. Because, in fact, this field should be of great concern." In the article, Goldstein discusses the apparent bias of the current bioethics debate towards genetic engineering issues such as cloning and stem cells. While acknowledging that crucial decisions in this area must be made right now, he urges bioethicists to engage in parallel processing. Goldstein points out that the logical outcome of nanotechnology research will be forms of intelligent non-biological life something he calls Materio sapiens. Goldstein says he published the article to expand the dialog and vigorously engage a topic that, he believes, is not receiving enough attention from either the scientific community or the public. His main point is that we have not developed the vocabulary necessary to really discuss the ethical issues raised by bioengineering. "People worry about human cloning or turning into cyborgs even though, ultimately, that is not where the technology is heading. Cyborgs are synonymous with some type of human-machine hybrid when, in fact, nanotechnology will render that distinction meaningless. We want to believe that there will always be a place where biology begins and technology ends; a junction, a slot, a plug even if it is microscopic. "But with nanofabrication future generations will be able to build with atomic precision. When carbon and silicon are chemically bonded into the same molecule in a living system there is no logical place to draw the line talk about a slippery slope! As a graduate student, I witnessed the birth of a biotechnology industry built on the amazing scientific discoveries of molecular biology. But the goal of molecular biology is to understand the functions of the cell via the laws of physics and chemistry. If we succeed in dissecting cellular function at the molecular level, but can fabricate replacement parts from the entire Periodic Table of the Elements via nanotechnology, will 'we' choose to remain simply carbon-based?" Of course, there are no easy answers but Goldstein hopes that his article will alert the bioethics community that they are underestimating the trajectory of bioengineering technology. Along with Materio sapiens, Goldstein coins the term Homo technicus, and writes what he calls "The First and Second Laws of Biomimetics." "The slope may appear slippery now," he says in his article "but we are still human beings trying to keep our footing amidst a tangle of DNA and stem cells. That is about to change. " Of course Professor Goldstein intends to continue his work on biomaterials (for more information see www.bmes.alfred.edu). The idea, he says, is that society needs to have a discussion about when and how to use the fruits of bioengineering and nanotechnology far in advance of the day when they are ripe. "Two hundred years may seem like a long time" remarks Goldstein "but in terms of evolution is much, much less than the blink of an eye." Goldstein points out that Robert Oppenheimer, the father of the atomic bomb, is famous for saying that, "the deep things in science are not found because they are useful; they are found because it was possible to find them." "In other words," says Goldstein, "if we can build it we will build it unless we decide not to."