




A Monthly e-Newsletter From:

 Institute for Alternative Futures

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Upcoming Events:

Evolution At Work For People With Disabilities In The 21st Century, IAF President Jonathan Peck, Rehabilitation Services Administration Director's Conference, August 22, Arlington, VA.

2029 and the Avatar Vision, IAF President Jonathan Peck, URAC, August 29, Washington, DC.

The Future of the Meetings Industry: Impact and Actions, IAF Senior Futurist Marsha Rhea with Joan Eisenstodt, [Affordable Meetings National](#), September 6, 4:30 p.m., Washington Convention Center, Washington, D.C.

Leadership Formula for Change, IAF Senior Futurist Marsha Rhea, [Association of School Business Officials International](#), October 14, 2:15 p.m. Toronto.

A Renaissance in Robotics on the Horizon

"As futurists, we are always nervous when speculating about robotics," says IAF's Devin Fidler. "It is a field that was so hyped in popular images of the future in the mid-twentieth century that many people are disappointed at what by now seems like slow progress. Still, it seems that a number of elements are coming together to rapidly move the field forward, if not quite to the levels envisioned by science-fiction writer Isaac Asimov and others."

Military applications of robotics have been an area of ongoing research for decades. Yet, there is evidence that this work has recently begun to pay off. In addition to specialized devices for surveillance and munitions diffusion, recently the US Army began [deploying](#) "special weapons observation remote reconnaissance direct action systems," or SWORDS, the first robots outfitted with machine guns to be used in combat. Interestingly, and perhaps comfortingly, these robots are still controlled remotely by human operators, yet plans are in the works for future generations of machines operated by swarm intelligence platforms.

Similarly, The Defense Advanced Research Projects Agency (DARPA)'s next Urban Challenge race, set to be held in October, features [autonomous ground vehicles](#) conducting simulated military supply missions. After teams successfully completed the course for the first time in 2005, this year's competition demands that vehicles negotiate city streets and merge with traffic as well. DARPA, always an interesting source for robotics programs, has also announced plans to deploy a [robotic battlefield medic](#) as early as 2009.

Yet advances have not been limited to military applications. "Home robotics" is an industry in its infancy but poised to make great strides. While many might see products like [iRobot's Roomba](#), an autonomous robotic vacuum cleaner, as little more than novelties, they might be surprised to learn that Microsoft's Bill Gates has [argued](#) that the field of robotics is today analogous to the computer industry when Microsoft was founded. That is, poised for exponential growth. Indeed, Microsoft itself has just established a robotics division and is currently seeking to build standards and platforms for the anticipated boom.

Microsoft is not the only player betting on an industry expansion. South Korea's Ministry of Information and Communication has grouped more than 30 companies and more than 1,000 scientists from universities and research institutes to advance the field of home robotics to maturity by 2020. Tokyo University has made a similar move by bringing together a consortium of companies to develop next-generation robotic technologies. Over the next decade and a half the consortium will develop robots to provide support to the nation's aging population. Primitive prototypes of plush, silicone-covered nursemaids, like the [RI Man](#), already exist.

"It is interesting," observes Fidler, "how much America's preconceptions about robots seems to be rooted in images of androids and questions of consciousness, but that may say more about us than it does about these technologies. Our strong presumptions could potentially be blinding us to as many possibilities as they support. At this point, it might be more productive to popularly frame potential of robotics around dramatic extensions of industrialization technologies and automation rather than simply as benchmarks to a potentially science fiction future."

Emerging Trends from the World Future Society

IAF Futurists attended the World Future 2007 Conference on July 29th - 31st in Minneapolis. Many great sessions were offered throughout the conference and a number of interesting trends were presented by our colleagues. Below are two trends that caught our eye at the conference.

Virtual Avatars Become the New Email: A running theme throughout the conference was the importance of virtual worlds in fields as diverse as business and education. IAF explored how virtual worlds are creating a [Second Life for Business](#) in our January edition of the newsletter. There have been a number of new developments to virtual worlds since that time and the World Future Society conference highlighted a number of these new developments.

Coldwell Bankers, a real estate firm, has created a [virtual model](#) of a real \$3.1 million home on sale in the Seattle area. Over 3,500 visitors have toured the home in Second Life compared to the 50 to 100 people who typically tour homes for sale in the physical world. Randstad, the human relations services agency, has opened up a [virtual branch](#) in Second Life for those seeking jobs in the virtual world. An enterprising group of scientific researchers are developing a virtual island where potentially dangerous real life educational experiments, like those involving [nuclear material](#), can be conducted.

A number of new competitors to Second Life have emerged with a focus on unique demographic markets and with much more intuitive tools for creating avatars and items. [There.com](#) is a teen friendly alternative to Second Life complete with a virtual recreation of Laguna Beach created by MTV to tie into their popular TV show. Sony is releasing a virtual world tied to their Playstation gaming console that might be a next generation

challenger to Second Life. The [Playstation Home](#) virtual world offers public hangouts, personal apartments, voice chat and virtual games.

"Virtual Worlds are growing rapidly with a number of competitors emerging to take a dominant position in the market," observes IAF Futurist Craig Bettles. "By 2012, most of us will have virtual avatars just as we now have email addresses, but not necessarily in Second Life."

Biotechnology Holds Promise and Peril: Biotechnology was a key trend throughout the conference and was highlighted in diverse sessions from the future of weapons to the future of love, lust and attachment. Students from the Futures Studies program at the University of Houston, including IAF Intern Jason Siko, explored the potential and the danger of biotechnology in other key areas during one of the conference's keynote sessions.

One of the emerging benefits of biotechnology is in environmental remediation. Scientists have genetically altered the *Deinococcus radiodurans* bacterium to clean up solvents and heavy metals in contaminated sites. The bacterium is so hardy that it can clean up heavy metals in highly radioactive environments. Craig Venter, founder of Celera Genomics, has used the rapid DNA repair mechanisms that provide *Deinococcus radiodurans* with its protection from radiation to create synthetic organisms. Other potential uses for [synthetic organisms](#) include creating bacteria that capture carbon from the atmosphere and use it to create synthetic materials - thereby replacing hydrocarbons in the production of plastics while removing carbon from the atmosphere.

On the downside, the technologies and techniques needed to alter organisms to create biological weapons are getting cheaper and easier to access. Many pathogens have their DNA sequences released in the public domain. For example, the complete DNA sequence of the pathogenic *E. coli* O157:H7 was published in a 2001 article in *Nature* and Australian scientists published an article in a 2001 issue of the *Journal of Virology* that broadly described how to create more virulent strains of mousepox (a close relative of smallpox). DNA strands can be made to order for as little as .33 cents a base pair and used DNA sequencers can be purchased for as little as \$225.00 on eBay. Both the tools and the techniques for creating modified organisms will only become more common as the use of biotechnology spreads into our work and our lives.

University of Houston student and IAF intern Jason Siko summed up the opportunity and danger of biotechnology succinctly:

"While biotechnology has not delivered the results as soon as people would have liked, the future still holds much promise. Biology will solve the dilemmas of the 21st Century much like chemistry did for the 20th Century. However, chemistry did not get it right every time, and we often paid the price. We must be more diligent in the safe application of biotechnology, because unlike atoms and molecules, organisms have the ability to metabolize, mutate, and be mobile."

On the day after we left Minneapolis a tragedy occurred when the interstate bridge in Minneapolis collapsed. The bridge was less than a mile from the convention site. As of this writing, they are still searching through the remains of the bridge. We met many great people from Minneapolis during our stay and our thoughts go out to all the good people of Minneapolis during this trying time.

Insights from the Wiser Futures Workshop

IAF Founder Clem Bezold, and IAF Futurists Devin Fidler and Craig Bettles held a workshop on Wiser Futures at the World Future 2007 Conference. The workshop is an introduction to the Aspirational Futures approach used by IAF. The morning session covered the bread and butter futures tools of environmental scanning, forecasting and scenario development. The afternoon covered conceptual frameworks, vision, values, audacious goals and leading change inside organizations.

One of the strengths of the Aspirational Futures approach is the ability to harness the organization's highest aspirations to effect change inside an organization. IAF Futurists dedicated a significant section of time on using vision, values and audacious goals. They also showed how connecting an organization's highest aspirations to the futures process can create a positive environment for change inside organizations.

A number of the participants saw the value of connecting vision, values and audacious goals to the more traditional futures tools. This connection of Aspirational Futures to traditional futures tools can be a powerful tool for change inside their organizations. As one participant remarked:

"I was pleased to see how values were integrated into the scenario process. I feel that without this crucial part of the scenarios, the strategies that lead from them would fail and be false. Thank you for a great and energizing experience."

IAF holds the Wiser Futures Workshop every year in conjunction with the World Future Society Annual Conference. IAF also offers the workshop to clients across a range of organizations and is an approved offering through GSA Advantage for government agencies. If you would like to learn more about the Wiser Futures Workshop, please contact Craig Bettles at cbettles@altfutures.com.

IAF Continues Its Internship Program


IAF is continuing its internship program with two very talented interns joining the DRA Project. Leah Calvo and Sean Calvo are exploring an emerging "mind change" toward greater fairness and equity. The DRA Project is premised on the idea that the course of history in the United States is moving toward this mind change. Leah and Sean Calvo will be researching the major social and political movements such as the abolition of slavery, the women's rights movement, the civil rights movement and environmental protection. They will be exploring what "mind changes" enabled these social movements to succeed in spite of entrenched social and cultural resistance.

Leah Calvo is currently a student at Stanford pursuing a degree in public policy. She has interned previously with Congresswoman Susan Davis and the National Cancer Institute. Leah has deep experience in student government and with volunteer organizations. She is interested in political and technological changes, and passionate about community service and helping others. She is an alumna of the St. Albans School of Public Service Program, attended the Stanford-in-Oxford Program, and is a past board member of San Diego Youth and Community Services (SDYCS).

Sean Calvo is currently pursuing his degree in bioengineering from the Olin College of Engineering. Sean has previous research experience with Boston Scientific and the National Cancer Institute. He has been actively involved with student government at Olin, is an Eagle Scout and a former member of the fundraising committee for the Merrimack Valley branch of Habitat for Humanity.

If you or someone you know is interested in interning with IAF, please contact Craig Bettles at cbettles@altfutures.com.

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