

### Message from Nick

Despite its small budget and having existed for only a little over a year, FHI's work is already being recognized in a variety of ways. As part of applied ethics in Oxford, we were recently rated in the top group in the world in an independent academic ranking exercise. We have a vast stream of publications including ones in top journals such as Nature and Ethics. Our advice is sought by governments and influential organizations such as the European Commission, the House of Commons Technology Select Committee, British Medical Association, the President's Council on Bioethics, and the World Economic Forum. So far this year, we have averaged about two requests per week for media interviews; and a newly created FHI-sponsored blog is visited by more than 1,000 people every day.



Clearly there is a strong demand for the work we do. Our limited resources are thinly stretched. Going forward, the challenge will be to remain strongly focused on research. Public engagement and policy input are part of FHI's mission, yet academic research in our core areas continues to be our top priority. We also have to secure additional funding for both support staff and for building our research capacity in these areas.

### Applied Ethics at Oxford ranked 'in the highest group in the world'

The [Philosophical Gourmet Report](#), the most important ranking of Graduate Programs in Philosophy in the English speaking world, has just published their 2006 rankings. Applied Ethics at Oxford University appears in the highest group, Group 1, with median and mode scores of (4, 4). This is a tremendous achievement for Applied Ethics at Oxford.



**THE JAMES MARTIN  
21ST CENTURY SCHOOL  
UNIVERSITY OF OXFORD**

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### Blog of the Week

[www.overcomingbias.com](http://www.overcomingbias.com)

F.H.I. is sponsoring a new web forum (i.e., blog), which began November 20, 2006. Called Overcoming Bias, it is "A forum for those serious about trying to overcome their own biases in beliefs and actions." As of March 17, 2007 it has 35 contributors who had made 121 posts, which received 3257 comments, 103,721 visits, and 228,828 page views. The Economist voted the site 'Blog of the Week' in December 2006.

## FHI Visitors



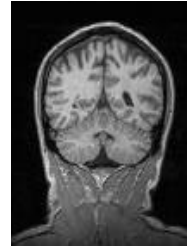
### **An Ravelingien PhD Research Assistant, Ghent University**

I am very grateful for Dr. Nick Bostrom's invitation to visit the Future of Humanity Institute during the month of February. Having just started a project on the ethics of neuroenhancement, it was extremely helpful to get in touch with the staff members of FHI and UEHIRO Centre for Practical Ethics, many of whom are specialized in the particular discussions that are of interest to my work. My PhD consisted of a bioethical account of the ethical benefits and risks of xenotransplantation, so I am entering what many will regard as an entirely new field - 'neuroethics'. The current research project is aimed at exploring the question if and under what conditions research and clinical trials of emerging neuroenhancement technology should be supported. During my 4-week visit, I focused on the treatment/enhancement distinction, trying to distinguish the various definitions of enhancement and to work out a working definition of (neuro)enhancement. The neuroenhancement workshop organized by Dr. Neil Levy and the many discussions with Dr. Anders Sandberg and Dr. S. Matthew Liao were particularly interesting and helpful in this regard. I also benefited from their help, as well as from the advice of Prof. Julian Savulescu, in preparing a framework for a new workshop on neuroenhancement, which will take place in Ghent at the end of November 2007. I look forward to collaborating with several staff members on joint papers in the future.

Past visitors and speakers at the James Martin 21st Century School Advanced Research Seminars have included Professor Robin Hanson, Professor Jeff McMahan and Professor Jeremy Sugarman.

## **Forthcoming Events**

### **Whole Brain Emulation Workshop**



Rebecca Roache, Nick Bostrom and Anders Sandberg are organising an FHI workshop on the topic of 'whole brain emulation', due to take place on 26 and 27 May.

This is an important technology foresight project, to be attended by invited experts from areas such as computational neuroscience, brain-scanning technology, computing and neurobiology. The goal is to create a 'roadmap' detailing the current state of art with regard to brain emulation, and identifying milestones that would have to be reached before whole brain emulation could become feasible.

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## **Future of Humanity Institute presents a special lecture by**

### **Ralph Merkle**



A leading nanotechnology pioneer from Georgia Tech. College of Computing, Atlanta, Georgia.

### **"Nanotechnology: the coming revolution in manufacturing"**

Week 5 TT07  
Friday 25 May, 3.30—5.30 pm  
Lecture Theatre, Rewley House  
Wellington Square, Oxford

See page 13 for further details

## Policy Advice

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### Nick Bostrom

- Nick was recently called upon to give his views at the House of Commons Science and Technology Select Committee on human enhancement policy issues, focusing on sports enhancement. He has since been asked to become the official advisor to this committee.
- Advised the European Commission on the implementation of the information and communication technologies (ICT) theme in the Community 7th Framework Programme for Research and Technological Development (2007-2013), Brussels 2006
- Attended a London brainstorming meeting with organizers to advise on and select a science and technology topic for the next *World Economic Forum in Davos*.
- Travelled to Brussels for the European Parliament Scientific Technology Options Assessment, to discuss 'Converging Technologies in the 21st Century: Heaven, Hell or Down to Earth?'
- Advised the *Parliamentary Office of Science and Technology* (POST) on the subject of cognitive enhances and associated ethical issues (2007).
- Advisory roundtable on cognitive enhancement for the *British Medical Association and the Royal Institution* (London, November 2006).
- Advised the *Parliamentary Office of Science and Technology* (POST) on the subject of cognitive enhancers and associated ethical issues.
- Advisory roundtable on cognitive enhancement for the *British Medical Association and the Royal Institution* (London, November, 2006).

## Presentations

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### Nick Bostrom

"Ethical and Social Implications of Cognitive Enhancement" Invited presentation for *Cognitive Enhancement Workshop organized by the British Medical Association* (London, 24 November 2006).

Panellist in debate on the topic "Will our Grandchildren be Robotic?" at the *BBC Festival of Ideas*, broadcast on Radio 3 (Liverpool, 5 November 2006).

"Dignity and Enhancement" presentation for the *James Martin Advanced Research Seminar* (Oxford, 20 October 2006).

### Peter Taylor

"Emerging Risks" talk at the "Risk Modelling for P&C Insurers" conference in London, forthcoming, 12 April 2007.

"Ten Challenges in Catastrophe Modelling" talk at the RAA/IUA Conference in London, forthcoming, 21 June 2007.

### Nick Shackel

Delivered a paper entitled 'Rhetorical manoeuvres rationalism and sophism' to the Logic and Rhetoric Conference, Cambridge, October 2006.

'Relations of belief and consciousness' talk at Oxford Centre for the Science of Mind, November 2006.

Delivered a paper entitled 'Epistemic blame, public knowledge and epistemic duty' to James Martin Advanced Research Seminar, March 2006.

## Global Catastrophic Risks

It seems a wonderful time to be alive - greater prosperity than ever before, technology advancing ever onwards and upwards to improved standards of living, and unprecedented capabilities for many to change their lives for the better. We live at a time when we have begun to understand life itself and in many parts of the world begun to apply this knowledge to reduce disease, improve health, and live longer. Developments in bio-science include unravelling the human genome, learning how to modify genes, and applying stem cells for a wide variety of beneficial purposes. In material science, we can already witness exploitation of the extraordinary properties of matter at the nanoscale. This is just the beginning of a revolution offering exciting and potent new physical and chemical capabilities which can be likened to the change brought by cars to the age of the horse. Similarly, we see a quiet but fast revolution in computers, with global information-sharing, machine intelligence, and the advent of quantum computing offering new potential for human knowledge and problem solving.

Unadulterated good news? What could possibly be wrong with this? Unfortunately, plenty. Because even if we are among those who benefit from the scientific and technological revolutions, plenty could go wrong. The new technologies all come with the potential for harm whether intentional or accidental, and we only have to think of asbestos or CFCs to appreciate the possibilities of unintended consequences turning a miracle into a nightmare. Moreover, our prospective well-being depends on the future course of economic, social and political systems - and not merely those in the West. That these evolutions are hard to predict was starkly illustrated in recent history by the collapse of the eastern block.

Threats posed by natural catastrophes such as hurricanes, earthquakes, floods, and tsunamis are all familiar to us. We can even claim to have begun to assess their risk quantitatively by computer catastrophe loss models, which are nowadays an essential part of underwriting such risks in the insurance industry. With the help of stochastic data analysis many of these catastrophes can now even be predicted within certain limits. However, the new threats we are dealing with at the FHI are of a different order. They are of potentially global consequence with the biggest threat of all coming from man's traditional enemy - humanity itself. Whether the hobbyist gene-hacker, the mischief-making virus-creator of software viruses, the apparently socio-pathic suicide bomber, or the institutional socio-pathology of the military, the unlocking of Pandora's box of knowledge is making it easier than ever to create self-propagating disruption some of which have runaway and hence global catastrophic consequences. Also the unintended side effects of an intended 'good use' of the scientific and technological knowledge might be disastrous. One such risk which just recently has gained publicity and political attention is a man-made greenhouse effect. Climate Change, though, is but one of several risks and the fervour with

which it is being met by scientists wishful of funding and governments seeking popular acclaim could yet discredit the sober analysis we need for these novel risks.

Almost all decisions we take might have potentially harmful and some even globally catastrophic side effects. It is easy to conjecture disaster. Predicting doom and gloom has been a hobby of thinkers during all times: Amongst others, Plato (*Laws*) and Aristotle (*Metaphysics* II 2) painted overpopulation as a threat to mankind already in the ancient world, G. Botero (1589) and T. Malthus (1798) have joined the Cassandras, and so has more recently the Club of Rome (1972). So far the doom-mongers have been wrong. What's different now? The new capabilities in technology and widespread liberalisation have made dangerous capabilities widely available. Unprecedented side effects of any new technology become more likely when it is used globally on a large scale. With, for example, asbestos we have had the experience that new technologies can entail unprecedented side effects and we must not ignore this knowledge. In an evermore connected world it seems possible that fragility also increases, converting what were hitherto local contained risks into global catastrophic risks.

But what can be done about the new risks? On the one hand, we cannot ignore their existence, on the other hand it is impossible to avoid them in a self-consistent way, as non-action itself entails a risk. Our research program seeks to enable policymakers, academics, and the public to evaluate these threats and decisions might be taken to understand, reduce, or even mitigate them. We will look at the nature of risk itself as characterised by the plot of likelihood against adversity and the way uncertainty then expresses our degrees of confidence in these plots. In estimating the adversity, the field of science is transcended and ethical reasoning comes into play. Recall that the term 'catastrophic' is not a word from science, but is a value-laden statement. We will ask to what extent the reasoning within decision theory can be used for a morally adequate risk assessment. This begs a more fundamental question, namely the question to what extent context-independent criteria - for example in the form of rule-based approaches or cost-benefit analysis - are able to deal adequately with the problems related to risks. We will develop qualitative (questionnaire-based) risk assessment and look at the types of quantitative modelling that might best describe such problems. Of particular interest are the various types of stochastic modelling used in natural, economic, and actuarial science. In assisting policymakers we need tools that provide sensitivity and impact analysis so that a picture of assumption and consequence can be built up. Whether quantified in terms of probabilities and losses or remaining qualitative as may need to be the case for many of the aspects of these risks, this methodology will make clear where clustering of outcomes indicate which policy actions are most likely to be effective. The concept of risk

inevitably pervades all the programmes of the James Martin 21<sup>st</sup> Century School. We thus will be working together with the other Institutes and in particular continue our cooperation with the Environmental Change Institute, the Institute for Infections of Humans, and the Program on Ethics of the New Biosciences to develop our collective understanding of the risks facing the future of humanity.

**Peter Taylor and Rafaela Hillerbrand**

### Bibliography

Paul, W./Baschnagel, J. 1999, *Stochastic Processes, From Physics to Finance*, Springer

Hansson, S. O. 1996, What is philosophy of risk? in: *Theoria* 62:169-186.

## Journal Articles

**Bostrom, N. "[Sleeping Beauty and Self-Location: A Hybrid Model](#)", *Synthese*, Forthcoming. Volume 157: 1, July 2007 URL: <http://www.anthropic-principle.com/preprints/beauty/synthesis.pdf>**

The Sleeping Beauty problem is an important test stone for theories about self-locating belief. I argue against both the traditional views on this problem and propose a new synthetic approach.

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**Bostrom, N. "[What is a Singleton](#)", *Linguistic and Philosophical Investigations*, forthcoming. URL: <http://www.nickbostrom.com/fut/singleton.html>**

This note introduces the concept of a "singleton" and suggests that this concept is useful for formulating and analyzing possible scenarios for the future of humanity.

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**Bostrom, N. "[Ethical Issues in Advanced Artificial Intelligence](#)", *Review of Contemporary Philosophy*, forthcoming. URL: <http://www.nickbostrom.com/ethics/ai.html>**

The ethical issues related to the possible future creation of machines with general intellectual capabilities far outstripping those of humans are quite distinct from any ethical problems arising in current automation and information systems. Such superintelligence would not be just another technological development; it would be the most important invention ever made, and would lead to explosive progress in all scientific and technological fields, as the superintelligence would conduct research with superhuman efficiency. To the extent that ethics is a cognitive pursuit, a superintelligence could also easily surpass humans in the quality of its moral thinking. However, it would be up to the designers of the superintelligence to specify its original motivations. Since the superintelligence may become unstoppably powerful because of its intellectual superiority and the technologies it could develop, it is crucial that it be provided with human-friendly motivations. This paper surveys some of the unique ethical issues in creating superintelligence, and discusses what motivations we ought to give a superintelligence, and introduces some cost-benefit considerations relating to whether the development of superintelligent machines ought to be accelerated or retarded.

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**Nick Bostrom "Do we Live in a Computer Simulation" *New Scientist*, Vol. 192, No. 2579, 19 November, pp. 38-39.**

## Journal Articles continued

Bostrom, N. "[Ethical Principles in the Creation of Artificial Minds](http://www.nickbostrom.com/ethics/aiethics.html)" , *Analysis and Metaphysics*, forthcoming. URL: <http://www.nickbostrom.com/ethics/aiethics.html>

Shackel, N. "Shutting Dretske's Door", *Erkenntnis*, Vol. 64 pps. 393-401. (October 2006)

Dretske proposes a theory of knowledge in terms of a theory of information, but wishes to deny that empirical knowledge settles the large question of scepticism. This leads him to deny the closure of knowledge under known entailment. In a recent paper Jäger argues that Dretske's theory of information *entails* closure for knowledge, 'at least for the kind of propositions here at issue' (Jäger 2004:194). If Jäger is right, Dretske is seriously embarrassed and must give something up. In this paper I show that there are two flaws in Jäger's argument. The principle of informational closure considered by Jäger is incompatible with Dretske's theory of information, and Jäger's argument that Dretske is committed to a certain kind of substitution instance of that principle of informational closure is invalid. I propose adequacy conditions on signalled information and use them to motivate a formulation of a general closure principle for signalled information. I show that Dretske's account of information satisfies the adequacy conditions, but in a way which commits him to an instance of the general closure principle. I argue that Dretske is consequently committed to closure for some cases of knowledge for which he wishes to deny closure. Finally, I sketch how, on the basis of the closure principle to which Dretske is committed, Jäger's broader argument may yet go through.

## Contributed book chapters and articles

Nick Bostrom "Technological Revolutions: Ethics and Policy in the Dark" *Nanotechnology and Society*, eds. Nigel M. de S. Cameron and M. Ellen Mitchell (John Wiley), forthcoming.

Technological revolutions are among the most important things that happen to humanity. Ethical assessment in the incipient stages of a potential technological revolution faces several difficulties, including the unpredictability of their long-term impacts, the problematic role of human agency in bringing them about, and the fact that technological revolutions rewrite not only the material conditions of our existence but also reshape culture and even – perhaps - human nature. This essay explores some of these difficulties and the challenges they pose for a rational assessment of the ethical and policy issues associated with anticipated technological revolutions.

Nick Bostrom "Dignity and Enhancement" invited chapter for forthcoming book on human dignity by *The President's Council of Bioethics*, (2007).

Does human enhancement threaten our dignity as some have asserted? Or could our dignity perhaps be technologically enhanced? After disentangling several different concepts of dignity, this essay focuses on the idea of dignity as a quality (a kind of excellence admitting of degrees). The interactions between enhancement and dignity as a quality are complex and link into fundamental issues in ethics

Bostrom, N., Recent Developments in the Ethics, Science, and Politics of Life-Extension [forthcoming, *Aging Horizons*, Sept/Oct issue, 2007]

Blackballing the reaper is an old ambition, and considerable progress has been made. For the past 150 years, best-performance life-expectancy (i.e. life-expectancy in the country where it is highest) has increased at a very steady rate of 3 months per year.<sup>[1]</sup> Life-expectancy for the ancient Romans was circa 23 years; today the average life-expectancy in the world is 64 years.<sup>[2]</sup> Will this trend continue? What are the consequences if it does? And what ethical and political challenges does the prospect of life-extension create for us today? This article comments on some views on the ethics, science, and politics of life-extension from a recent edited volume, *The Fountain of Youth*.



### Contributed book chapters and articles continued

Nick Bostrom "Ethical and Political Challenges to the Prospect of Life Extension" invited article for *World Demographics Association Proceedings*, (2006).

Nick Bostrom "The Ethics of Artificial Intelligence" *The Cambridge Handbook of Artificial In-*

Bostrom, N. "The Future of Humanity" *Companion to Philosophy of Technology*, eds. Jan-Kyrre Berg Olsen, Stig Andur Pedersen, and Vincent F. Hendricks (Blackwell), 2007, forthcoming.

Taylor, P. "The Lighthill Risk Network", *Mathematics Today*, (December 2006)

Taylor, P. "The Lighthill Risk Network", *Catastrophe Risk Management*, (forthcoming, April 2007)

### Reprints and Translation

Nick Bostrom, "Technological Revolutions: Ethics and Policy in the Dark" with a new Foreword, *Ethics of East and West: How they Contribute to the Quest for Wisdom*, ed. Julian Savulescu (Oxford Uehiro Centre for Practical Ethics, Oxford, 2007).

Nick Bostrom, "Are You Living in a Computer Simulation?", Reprinted in *Linguistic and Philosophical Investigations*, forthcoming, March 2007.

Nick Bostrom, "Astronomical Waste", Reprinted in *Review of Contemporary Philosophy*, forthcoming, August 2007.

Nick Bostrom, "Human Genetic Enhancements: A Transhumanist Perspective", Reprinted in *Review of Contemporary Philosophy*, forthcoming, August 2007.

Nick Bostrom, "Transhumanism: The World's Most Dangerous Idea?" Reprinted in *Analysis and Metaphysics*, forthcoming, October 2007. (This is an expanded version of earlier note in *Foreign Policy*.)

## Nick Bostrom Media

*Utildnings Radion* (Swedish educational radio). 2007. Interviewed about the future of human evolution, the impacts of transformative technologies, and transhumanist ethics.

*CLOSER TO TRUTH* (public television / PBS series). 2007. Long interview covering topics for many shows: the simulation argument, anthropic reasoning, the future of intelligent life, multiverse theories, the Doomsday argument, etc.

 *Drivetime With Dave Fanning on RTE Radio One* (Irish radio). 2007. Interviewed about human enhancement and nanotechnology.

*Urbania* (Montreal-based magazine). 2007. Short interview about what the priorities should be on the environmental agenda.

*Boston Globe*. 2007. Interviewed about existential risks, and about the invocation of the term “existential threat” in relation the war on terror.

*San Diego Union-Tribune*. 2007. Interviewed about human evolution and its possible future directions.

*The Sunday Herald* (Scottish newspaper). 2007. Interviewed about life-extension and transhumanism.

 *Drivetime With Dave Fanning on RTE Radio One* (Irish radio). 2007. Interviewed about the simulation argument.


*Odd at Large* (Swedish Magazine). 2007. Interviewed about the activities of the Oxford Future of Humanity Institute, global catastrophic risks, and the simulation argument.


 *BBC Focus Magazine*. 2007. Interviewed about the simulation argument.

*Fast Thinking* (Australian magazine. 2007. Interviewed about DNA technology and about the possibility of eradicating aging and disease.


*The Today Programme* (BBC Radio 4). 2007. Interviewed about the role of instincts and moral intuitions in bioethics and discussions about human enhancement.

*McCalmont's web forum*. 2006. Interviewed about my background and miscellaneous topics.

 *The Today Programme* (BBC Radio 4). 2006. Interviewed about gene doping and performance enhancement in sport.

 *Discovery Channel* (United States). 2006. Interviewed about cyborg technology, uploading, and the future of humanity.

*PIMM* (book blog). 2006. Interviewed about life extension.

 *BBC Focus Magazine*. 2006. Interviewed about cosmological problems and the simulation argument.



### Nick Bostrom Media continued

*Personal Computer World*. 2006. Interviewed about transformative future technologies.

*Mongrel Magazine*. 2006. Interviewed about transhumanism.

*Cryonics Magazine*. 2006. Interviewed about ethical issues related to the practise of cryonic suspension.

**BBC** *BBC Radio 3*. 2006. Hour-long debate about the future of human enhancement and robotics, part of the BBC Festival of Ideas in Liverpool.

*The Times*. 2006. Interviewed about human enhancement and associated ethical issues.

*Independent documentary film*. 2006. Interviewed about future energy sources.

### Anders Sandberg Media

December 31: Participated in debate program "The Philosophical Room" on Swedish national radio, discussing human enhancement with Professor Lars Bergström (philosophy), Professor Maria Strömme (nanotechnology) and Bishop Antje Jackelén.

December 18: Lectured on the social impact and ethics of life extension at a seminar organized by Eudoxa at Uvvy Island in the virtual reality world Second Life.

<http://www.eudoxa.se/content/archives/Keepraging.pdf>

January 10: Participated in "Our Sci-Fi Future", a dialogue event at the Dana centre at the London Science Museum. <http://www.danacentre.org.uk/events/2007/01/10/215>

February 12: Lectured on "New Media, New Brains" at Thames Valley University.

February 23: Interviewed by Linus Brohult, Editor-in-Chief of Mobil Magazine on cognition enhancement, privacy and human-machine symbiosis for report on "The Mobile Human 2.0"

February 21: Appearance on NBC program "[Dawn of the robot age?](http://www.msnbc.msn.com/id/17244922/)"

February 16: Interviewed by Jorun Modén, health editor, on pharmacological enhancment of memory and love relations for the e-health.se newsletter.

March 3: Participated as expert in a public consultation on enhancement drugs in Glasgow, part of the Academy of Medical Sciences' project Drugsfutures.

March 8: Interview for Gate Report Magazine on the future of brain research.

March 12: Interview Maria Cheng, AP on transhumanism, enhancement and future studies. Participated in the Delphi study *Education and Learning: Possibilities by 2030* organized by the UN Millennium Project. <http://www.realtimedelphi.com/STUDIES/education/kedu.php>



### Anders Sandberg



#### Meeting the Public:

To me one of the most delightful things in life is public lecturing and discussion. It is not just a chance to tell people about the issues in my research I think are most important or interesting, but also a chance to get feedback: do the audience agree that they are important? What are their concerns? Do they have a different view of things?

I had the chance to participate in a public consultation on cognition enhancers in Glasgow, part of the project *Drugsfutures*, <http://www.drugsfutures.org.uk/>, organized by the Academy of Medical Sciences. Members of the public were called upon to tell the organizers their views on enhancement, react to future scenarios and formulate what they thought were the best policy approaches. My role was to be an expert, providing information when needed. It was fascinating – and humbling - to see how laypeople relatively easily grasped many of the key ethical dilemmas and came up with recognizable ethical principles on their own. While their discussions may have lacked academic rigor and terminology they demonstrated that the public is not stupid, and quite able to formulate what it wants.

At the same time the consultation shows the broad range on opinions about enhancement. It seems unlikely that a single strict or simple policy would be able to handle the diversity of opinions in society, or the real-world complexities of how people decide about enhancement. For example, a majority were positive to enhance their memory and problem solving capacity, but at the same time the majority was also against society-wide use of enhancement. It appears that we are less altruistic about enhancement than health, making publicly funded enhancement a low priority, yet people are

deeply concerned about the competitive effects of enhancements available on the market. At the same time a heavily regulated market is likely to produce black markets and increased inequalities as some people go abroad to gain enhancement. To resolve this paradox will require deeper understanding of both what enhancement can do, how people might integrate it into their everyday lives, what the economical and social effects may be and some creative thinking of how to create incentives for positive enhancement use and discourage negative use.

It is going to take more than public consultations to achieve that. But it is a good start.

### BBC Festival of Ideas

Nick Bostrom debated the question 'Will Our Grandchildren be Robotic?' as part of the BBC Festival of Ideas. The festival, which took place in Liverpool, November 3- 5, included speakers across a range of disciplines and interests such as A. S. Byatt, Brian Eno and Vivienne Parry, as well as fellow James Martin 21st Century School director Dr Sarah Harper. More information can be found at <http://www.bbc.co.uk/radio3/freethinking/>

### Rebecca Roache

Rebecca taught a visiting student for a course of bioethics tutorials in Michaelmas term.

She has completed a book chapter, 'Human Enhancement', with Nick Bostrom.

Public outreach project: on 30th March Rebecca will be giving a presentation and leading a discussion on ethical aspects of cognitive enhancement with members of the public for the Academy of Medical Sciences 'Drugs Futures' project, which aims to explore public views on the sort of drug culture we want for the future.

She is also helping Matthew Liao from our sister JM institute, BEP, to organise a conference on the topic of human nature, due to take place in Hong Kong in December.

## Seminars and Visiting Speakers

### James Martin Advanced Research Seminar Programme (Trinity 2007)

#### **Week 1—Tuesday April 24**

Nick Shea: Topic TBA  
(University of Oxford, Faculty of Philosophy)

Steve Clarke and Rebecca Roache: Cognitive Bias and Enhancement  
(University of Oxford, Faculty of Philosophy)

#### **Week 2—Special lecture, Tuesday May 1 (6.00 – 7.30 pm, Ryle Room)**

Michael Boylan: Worldview and the Value-Duty Link to Environmental Ethics  
(Marymount University, Virginia)

#### **Week 3—Tuesday May 8**

Angela Wilkinson: Topic TBA  
(University of Oxford, Saïd Business School)

Kathleen Taylor: Topic TBA  
(University of Oxford, Department of Physiology, Anatomy and Genetics)

#### **Week 3—Special lecture, Friday May 11 (3.30 – 4.30 pm, Lecture Room)**

Roland Benedikter: Global Systemic Shift  
(University of Vienna and University of Innsbruck, Austria)

#### **Week 4—Tuesday May 15**

David Bengtsson: Topic TBA  
(Lund University, Sweden)

Jens Johansson: Topic TBA  
(University of Oxford, Faculty of Philosophy)

#### **Week 5—Special lecture, Tuesday May 22**

Steven Lee: Humanitarian Intervention and Just Cause  
(Hobart and William Smith Colleges, New York)

Ruud ter Meulen: Topic TBA  
(Bristol University)

#### **Week 5—Special lecture, Friday May 25 (3.30 - 5.30 pm, Lecture Theatre, Rewley House, Wellington Square)**

Ralph Merkle: Nanotechnology: the coming revolution in manufacturing  
(Georgia Tech. College of Computing, Atlanta, Georgia)

#### **Week 6 Tuesday May 29**

Luciano Floridi: Inforgs: on the Future of Participatory Agents  
(University of Oxford, Faculty of Philosophy)

Richard Ashcroft: Regulating Human Enhancements in the Military: Do Current International Legal Instruments Help?  
(Queen Mary University of London)

#### **Week 6—Special lecture, Thursday May 31 (4.00pm-6.00 pm, Lecture Room)**

Michael Otsuka: Double Effect, Triple Effect, and the Trolley Problem  
(University College, London)

#### **Week 7—Tuesday June 5**

Eloise Scotford: Topic TBA  
(University of Oxford, Faculty of Law)

Michael Selgelid: Topic TBA  
(Australian National University, Australia)

#### **Week 7—Special lecture, Friday June 8 (3.30 – 4.30 pm, Lecture Room)**

An Ravelingien: Topic TBA  
(Ghent University, Belgium)

#### **Week 8—Tuesday June 12**

Nick Shackel and Jerry Ravetz: The Ethics of Expertise  
(University of Oxford, Faculty of Philosophy and Saïd Business School)

Harvey Whitehouse: Topic TBA  
(University of Oxford, Institute of Social and Cultural Anthropology)

## Seminars and Visiting Speakers

### Invited Seminar Speakers

**Michael Boylan** (Ph.D. University of Chicago) is professor of philosophy and chair at Marymount University. His most recent book, *The Extinction of Desire* (April, 2007) is a bold experiment in narrative philosophy. *A Just Society* (2004) is his manifesto on ethics and social/political philosophy (and the most complete depiction of his normative worldview theory). He is also the author of *Basic Ethics* (2000) an essay on normative and applied ethics, *Genetic Engineering: Science and Ethics on the New Frontier* (2002, with Kevin E. Brown), *Ethics Across the Curriculum: A Practice-Based Approach* (2003, with James A. Donahue), and *Public Health Policy and Ethics*, (ed. 2004) along with 13 other books in philosophy and literature and over ninety articles. He is the general editor of a series of trade books on public philosophy with Basil Blackwell Publishers and another series of books with Prentice Hall as well as the ethics editor for the Internet Encyclopedia of Philosophy. Presently, Boylan is working on an extension of his worldview theory to some of the major problems in philosophy entitled: *The Good, The True, and The Beautiful*.



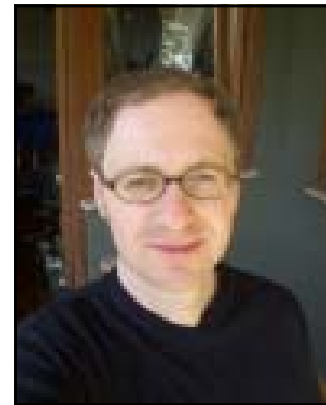
**Michael Boylan**

**Topic: Worldview and the Value-Duty Link to Environmental Ethics**

**Abstract:** Much of the debate concerning human duty to protect and defend the environment has revolved around the anthropomorphic-biocentric discussion. This essay seeks to address the problem in a different way. The vehicle by which the problem (concerning the source of duty) is approached is through the general methodology of worldview (both personal and public). From this worldview approach, I contend that a value-duty link arises. As a result, I contend that a new foundation might be created to support environmental values.

**Week Two**  
**Tuesday May 1, 6.00—7.00pm**  
**Ryle Room , Faculty of Philosophy.**

**Roland Benedikter**, born 1965, Dott. Lett. (Padova, with honours), Dr. phil. (Berlin, magna cum laude), Dr. phil. (Innsbruck, with excellence), is Founding Member of the Institute for the History of Ideas and Research on Democracy, Innsbruck-Vienna. He is a co-author of Ernst Ulrich von Weizsäcker's "Report to the Club of Rome" 2003 (all three versions: English, German and Chinese), has edited and co-authored the 7-fold book series "Postmaterialism" in Vienna's Passagen Verlag (2001-2005, see international praise in: [www.passagen.at/autoren/benedikter.html](http://www.passagen.at/autoren/benedikter.html)), published more than 100 essays in international specialized journals, and is currently working on a book about the "Global Systemic Shift". Since 2005 he collaborates with the International Civil Society Initiative for the United Nations Decade "Education for Sustainable Development 2005-2014", since 2006 he is an External Advisor of the School of Social Sciences of the University of Plymouth. He teaches Socio-Cultural and Political Sciences at the University of Vienna, at the University of Innsbruck (Austria) and at the Free University of Bolzano-Bozen (Italy). His previous teachings include Turkey, Bulgaria, Switzerland, Germany, the US and Peru.



**Roland  
Benedikter**

**Topic: Global Systemic Shift. The "Three Ends" of our Epoch and their Perspective in the Interplay between the four system spheres Economics, Politics, Culture and Religion**

**Abstract:** World wide development since 1989 (and even more intensely, since September 11, 2001) does not depend any more on traditional notions of Economics and Politics alone, but is increasingly co-shaped by the so-called "Cultural turn" of civilisations, and by the global "Renaissance of Religions". Therefore, we can currently speak of a *structurally fourfold* systemic shift: of a change in the basics of the organizational and paradigmatic patterns of world wide order structures, which seems to be occurring *exactly in the interplay between* the four typological Macro-Spheres of Economics, Politics, Culture, and Religion on a world wide scale.

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## Seminars and Visiting Speakers

### Invited Seminar Speakers continued

#### Roland Benedikter (continued)

This "global systemic shift" departs basically from *three epochal ends* which seem to characterize our epoch: 1. The End of "Neoliberalism" (in the Sphere of Economics); 2. the End of the "New World Order" (in the Sphere of Politics); and 3. the End of "Postmodernism" (in the Sphere of Culture). It is accompanied 4. by the global "Renaissance of Religions" (in the Sphere of Religion). *All four* developments are increasingly acting on each other and influencing the process as a whole.

Whereas all these elements are more or less well known in the different specialized sciences, their analysis remains widely isolated, since they have not yet been integrated satisfyingly into a unifying macro-picture - or into a "coherent unity" - by "synthetic work" (Nick Bostrom). But it can be assumed that the possibilities to anticipate the outcomes of the overall process and to handle it appropriately will depend strongly of the possibility to develop a synthetic macro-picture which must identify the core developments behind the very different single phenomena.

This keynote tries to identify some of these core elements by investigating the very different- but coalescing - roots and streams of the "Global Systemic Shift" within the increasing [interweavement](#) between political, cultural, religious and economical symptoms. The investigation is not oriented primarily towards technological innovation, but covers the political, cultural, economical and religious macro-tendencies around them.

**Week Three**  
**Friday May 11, 3.30—4.30 pm**  
**Lecture Room, Faculty of Philosophy.**

**Ralph Merkle** received his Ph.D. from Stanford University in 1979 where he co-invented public key cryptography. He joined Xerox PARC in 1988, where he pursued research in security and computational nanotechnology until 1999. He was both Nanotechnology Theorist at Zyvex and a security consultant until 2003, when he joined the Georgia Institute of Technology as a Distinguished Professor of Computing. He returned to Silicon Valley in 2007 where he is an independent consultant. He has been an active supporter of the non-profit Foresight Institute and chaired the Fourth and Fifth Foresight Conferences on Nanotechnology. He was corecipient of the 1998 Feynman Prize for Nanotechnology for theory, corecipient of the ACM's Kanellakis Award for Theory and Practice "For the conception and first effective realization of public-key cryptography," and the 2000 RSA Award in Mathematics. Dr. Merkle has fourteen patents and has published extensively. His home page is at [www.merkle.com](http://www.merkle.com).



**Topic: Nanotechnology: the coming revolution in manufacturing**

**Abstract:** A new manufacturing technology looms on the horizon: molecular nanotechnology ([www.zyvex.com/nano](http://www.zyvex.com/nano)). Its roots date back to a 1959 talk by Richard Feynman ([www.zyvex.com/nanotech/feynman.html](http://www.zyvex.com/nanotech/feynman.html)) who said "...ultimately...we can arrange the atoms the way we want; the very atoms." In recent years the idea that we should be able to economically arrange atoms in most of the ways permitted by physical law has gained greater acceptance -- though how long this might take is still debated. What might these systems look like? And what will be the impact? Computer hardware will certainly benefit as we continue to shrink switches to the molecular size and extend computational systems into three dimensions. Medicine will be fundamentally changed by molecularly precise medical tools. The cost of spaceflight should drop by three orders of magnitude or more. Virtually every manufactured product can be improved, often by orders of magnitude, once we have molecular nanotechnology.

**Ralph Merkle**

**Week Five**  
**Friday May 25, 3.30—5.30 pm**  
**Lecture Theatre, Department of Continuing Education,**  
**Rewley House, Wellington Square, Oxford**



## Staff and Contact Details

### Director

Dr Nick Bostrom



Nick Bostrom's research covers issues in the foundations of probability theory, global catastrophic risk, ethics of human enhancement, and consequences of potential future technologies such as artificial intelligence and nanotechnology, and related areas.

Bostrom has published more than 100 articles, including papers in journals such as *Nature*, *Journal of Philosophy*, *Ethics*, *Bioethics*, *Mind*, *Journal of Medical Ethics*, and *Astrophysics & Space Science*. He is the author of one monograph, *Anthropic Bias* (Routledge), and co-editor of two forthcoming volumes (OUP). His writings have been translated into more than 15 languages.

Bostrom has a background in physics and computational neuroscience as well as philosophy. Before moving to Oxford, he taught philosophy at Yale University. He is also a former British Academy Postdoctoral Fellow. He worked briefly as an expert consultant for the European Commission in Brussels and for the Central Intelligence Agency in Washington DC.

Bostrom is a frequently sought-after commentator in the media, having done nearly 200 interviews for television, radio, and print media.

### James Martin Research Fellow in Global Risk Modeling

Dr Rafela Hillerbrand



Rafaela studied physics (with a minor in fluid mechanics) and philosophy (minor in political sciences) at the Universities of Erlangen-Nürnberg (Germany) and Liverpool. She received a Ph.D. in philosophy from the former in 2003 for a work on the ethics of technology. The work covered aspects of applied ethics just as well as genuine theoretical normative ethics, and was awarded the Lilli-Bechmann-Rahn-Preis in 2005.

Rafaela has been working in Theoretical Physics at the University of Münster and the Observatoire de la Côte d'Azur in Nice (France) on hydrodynamic turbulence since 2003.

Her work at the FHI will include an ethical assessment of decisions made under risk and under uncertainty.

### James Martin Research Fellow in Theoretical Ethics

Dr Nicholas Shackel



Nicholas Shackel's research at FHI is focused on the ethics of human enhancement, with a particular interest in developing our 'Smarter and Wiser' program and in epistemic ethics. His philosophical research has been mainly on rationality.

Continued...

Nick Shackel (continued)

He has conducted research into the kinds of obligations there are to be rational in belief and in action, the relations between practical and theoretical reason, paradoxes of rational decision, philosophy of probability, intentionality, and deontic logic. More recently, he has extended his research into the areas of neuroethics and neuroepistemology. His publications include papers in *British Journal for the Philosophy of Science*, *Erkenntnis*, *Metaphilosophy* and *Mind*.

Prior to joining FHI he was at the Oxford Centre for the Science of Mind, and before coming to Oxford he lectured in philosophy at the University of Aberdeen

### James Martin Research Fellow

Dr Rebecca Roache



Rebecca Roache studied philosophy at the universities of Leeds and Cambridge, receiving a Ph.D. from the latter in 2002. She then spent three and a half years working in IT, and a short spell teaching philosophy at the University of London, before joining the Future of Humanity Institute in 2006.

Her research interests centre around issues relating to personhood. In particular, she is interested in the extent to which our thought, self-conception, and patterns of self-concern are products of the sort of beings we are, biologically; and the effects that enhancing human capabilities might have on our beliefs about personhood.

Rebecca is a Research Associate at Balliol College.

### James Martin Research Associate

Dr Robin Hanson



Robin Hanson is an associate professor of economics at George Mason University, and a research associate at the Future of Humanity Institute of Oxford University.

After receiving his Ph.D. in social science from the California Institute of Technology in 1997, Robin was a Robert Wood Johnson Foundation health policy scholar at the University of California at Berkeley.

In 1984, Robin received a masters in physics and a masters in the philosophy of science from the University of Chicago, and afterward spent nine years researching artificial intelligence, Bayesian statistics, and hypertext publishing at Lockheed, NASA, and independently. Robin has over 60 publications and since 1988 he has pioneered the new field of prediction markets.

Robin also studies the social impact of future technologies.



## Staff and Contact Details

**Research Associate**  
Dr Anders Sandberg



Anders Sandberg is a Swedish neuroscientist, science debater, futurist, transhumanist, and author. He holds a Ph.D. in computational neuroscience from Stockholm University and has studied computer models of human memory at the Royal Institute of Technology, Stockholm, Sweden. He has also been scientific producer for the neuroscience exhibition "Se Hjärnan!" ("Behold the Brain!"), organized by Swedish Travelling Exhibitions, the Swedish Research Council and the Knowledge Foundation that is touring Sweden 2005-2006.

He is co-founder of and writer for the think tank Eudoxa. Between 1996 and 2000 he was Chairman of the Swedish Transhumanist Association.

His other interests include physics, astronomy, biomedicine, psychology, complexity theory, art, science-fiction, roleplaying, computer graphics, artificial intelligence, cognitive science, information visualization, intelligence amplification technologies, and the philosophy and politics of human enhancement.

Anders is the Postdoctoral Research Assistant for the Oxford ENHANCE Project. The Enhance Project is hosted by the Uehiro Centre for Practical Ethics.

**Research Associate**  
Dr Guy Kahane



Guy Kahane's areas of research include value theory, meta-ethics, practical ethics, the history of ethics, and the philosophy and ethics of neuroscience.

He is especially interested in questions about the nature and value of pain and suffering. He is currently a postdoctoral research associate at the [Oxford Centre for Science of the Mind](#) and Deputy Director of the [Oxford Uehiro Centre for Practical Ethics](#)

**Research Associate**  
Toby Ord



Toby Ord's research interests encompass both theoretical and practical ethics.

He is currently focusing on a number of questions concerning the nature of consequentialism, its connection to practical decision making, and its relationship to other normative theories. In addition, he is looking at the moral status of the human embryo and at techniques to identify and overcome biases in ethical decision making.

**Research Associate**  
Dr Peter Taylor



Peter Taylor has spent the last 25 years working in the Lloyd's insurance market where he has managed IT and loss modelling departments and led and participated in many projects. He has been a director of insurance broking and underwriting companies and market organisations, and is currently the Project Director of the Lighthill Risk Network ([www.lighthillrisknetwork.org](http://www.lighthillrisknetwork.org)), a non-profit organisation based at the Lighthill Institute of Mathematical Sciences with a mission of bringing together the business and scientific communities for their mutual benefit.

Peter intends to spend most of his time working for the Institute from October 2006.

Peter has a long-standing interest in all aspects of risk, whether in insurance or in science generally, and has a particular background in the foundations of quantum theory for which he was awarded his D Phil at Oxford.

His interests include chemistry, physical geography, mathematics, physics, climate change, literature, art, cricket, and philosophy.

**James Martin Projects Research Coordinator**

Ms Jo Armitage



Jo has worked for the Centre for Criminology, St Hilda's College and OUP during her time in Oxford. She has a BA from the University of Manchester, and a postgraduate qualification in personnel management from the Metropolitan University of Manchester.

**James Martin Projects Officer**

Ms Rachel Woodcock



Rachel joined the Future of Humanity Institute in February 2007. Before that, she spent a year working as a course administrator at the Oxford Learning Institute. She has also worked at OUP and Oriel College.

### We want to hear from you!

To contact the FHI, or to be added to our newsletter mailing list, please contact Rachel Woodcock.

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