



# Achievements Report: 2008-2010

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Submitted to the Oxford Martin School review panel; prepared according to the School's guidelines

## **EXCELLENCE**

The Future of Humanity Institute has established a reputation as the leading research centre in the world in its areas of activity. The Institute is committed the highest standards of scholarship and academic excellence. The quality and quantity of its achievements over the past two years is demonstrated by many indicators.

To appreciate the significance of what has been accomplished, it should be kept in mind that the FHI has been understaffed for much of this period. One of our James Martin Research Fellows, Dr Rebecca Roache, has been on maternity leave for the past year. Our newest James Martin Research Fellow, Dr Eric Mandelbaum, who was recruited from an extremely strong field of over 170 applicants, has been in post for only two months. Thus, for half of the two-year period, FHI's research staff has consisted of two persons, Professor Nick Bostrom and Dr Anders Sandberg.

Much of Bostrom's research time over the past year has been devoted to work on two academic book manuscripts, which are still in progress.

## **Recognition**

In 2009, Professor Bostrom was given the *Eugene R. Gannon Award* (one person is selected annually worldwide from the fields of philosophy, mathematics, the arts and other humanities, and the natural sciences based "on criteria of integrity, ingenuity, professional recognition, and significance to the future of humanity"). He also made the *FP 100 Global Thinkers* list, the *Foreign Policy Magazine's* list of "the 100 minds that mattered most in the year that was". One of his original contributions was selected for inclusion in *Philosopher Magazine's* special issue "Ideas of the Century", a survey of the most important philosophical ideas to have surfaced in this century. He was recently contacted by an editor who wants to publish a Festschrift dedicated to his work. His writings have been translated into 19 languages, with 22 new reprints of his work appearing within the last two years.

## **Selected publications**

### Books

1. Bostrom, N. and Savulescu, J. (eds.) (2010) (paperback edition) *Human Enhancement* (Oxford: Oxford University Press)
2. Bostrom, N. (2010) (paperback edition) *Anthropic Bias: Observation Selection Effects in Science and Philosophy* (Routledge: New York & London )
3. Bostrom, N. and Savulescu, J. (eds.) (2009) *Human Enhancement* (Oxford: Oxford University Press)

#### Journal papers

1. Bostrom, N. (2010) "Existential Risks", *Risk Analysis*, forthcoming
2. Mandelbaum, E. and Ripley D. (2010) "Expectations and Morality: A Dilemma", *Behavioral and Brain Sciences*, forthcoming
3. Roache, R. (2010) "Fission, Cohabitation and the Concern for Future Survival", *Analysis*, Vol. 70, No. 2, pp. 256-263
4. Ord, T., Hillerbrand, R., and Sandberg, A. (2010) "Probing the Improbable: Methodological Challenges for Risks with Low Probabilities and High Stakes", *Journal of Risk Research*, Vol. 13, No. 2, pp. 191-205
5. Bostrom, N. and Kulczycki, M. (2010) "A Patch for the Simulation Argument", *Analysis*, forthcoming
6. Bostrom, N. (2010) "The Infinitarian Challenge to Aggregative Ethics", in preparation
7. Mandelbaum, E. (2010) "What is the Narrow Content of FENCE (and other Definitionally and Interpretationally Primitive Concepts)?", *Behavioral and Brain Sciences*, forthcoming
8. Holmes, E., Sandberg, A., and Iyadurai, L. (2010) "Erasing Trauma Memories: Is this What the Science Suggests or even What we Want to Do?", *British Journal of Psychiatry*, forthcoming
9. Ćirković, M., Sandberg, A., and Bostrom, N. (2010) "Anthropic Shadow: Observation Selection Effects and Human Extinction Risks", *Risk Analysis*, forthcoming
10. Liao, S., Sandberg, A., and Roache, R. (2010) "Human Engineering and Climate Change", submitted to *Ethics*
11. Sandberg, A. (2010) "Models of the Technological Singularity", submitted to *Technological Forecasting and Social Change*
12. Bostrom, N. (2009) "The Simulation Argument: Some Explanations", *Analysis*, Vol. 69, No. 3, pp. 458-461
13. Sandberg, A. and Bostrom, N. (2009) "Cognitive Enhancement: Methods, Ethics, Regulatory Challenges", *Science and Engineering Ethics*, Vol. 15, No. 3, pp. 311-341

14. Bostrom, N. (2009) "Pascal's Mugging", *Analysis*, Vol. 69, No. 3, pp. 443-445
15. Roache, R. and Clarke, S. (2009) "Bioconservatism, Bioliberalism, and Repugnance", *Monash Bioethics Review*, Vol. 28, No. 1, pp. 1-21
16. Roache, R. (2009) "Bilking the Bilking Argument", *Analysis*, Vol. 69, No. 4, pp. 605-611
17. Bostrom, N. and Ord, T. (2010) "Fundamental Moral Uncertainty", in preparation
18. Mandelbaum, E. "Explaining the Abstract/Concrete Paradoxes in Moral Psychology: NBAR Theory", submitted to *British Journal of Philosophy of Science*
19. Mandelbaum, E. "Against Alief", submitted to *Analysis*
20. Mandelbaum, E. "Thinking is Believing", submitted to *Mind*
21. Bostrom, N, Sandberg, and A., Douglas, T. (2010) "The Unilateralist's Curse", in preparation
22. Bostrom, N. (2010) "Information Hazards: A Typology of Potential Harms from Knowledge", in preparation

#### Contributed chapters in academic volumes

The Institute's staff has published a large number (**34**) of chapters in academic volumes, including multiple contributions to books published by prestigious presses and several invited contributions in volumes that feature contemporary classics or showcase the best current scholarship, such as *Companion to Philosophy of Technology*; *New Waves in Philosophy of Technology*; *Philosophy: Theoretical and Empirical Explorations*; and *Oxford Handbook of Neuroethics*.

#### **Distinguished presentations**

FHI members have given a total of 95 invited lectures and conference presentations (with another 15 upcoming). Locations include Harvard, Princeton, Ecole Normale Supérieure, New York, London, Stockholm, Munich, Tübingen, Oslo, Prague, Marseilles, Leuven, Stanford, and many others. Bostrom alone has delivered 17 talks within the UK and 11 international presentations and conference keynotes. Bostrom accepts approximately 1 out of every 5 invitations he receives.

#### **Various**

##### Visitors

The Institute receives many requests from students and scholars who wish to visit the Institute, only a few of which are accepted because of capacity limitations. The FHI has hosted a number of distinguished academic visitors over the past two years within its various areas of activity, such as Profs. David Chalmers, Michael Oppenheimer, and Thomas Homer-Dixon.

### James Martin Advanced Research Seminar (with BEP)

FHI has held a total of 59 weekly 2 hour seminars, with 7 upcoming this fall in new speaker-responder format.

### Technology

An interactive media player, developed by Bryce Goodman as part of a £1-2K collaboration grant from the Hub (with BEP) won OxTALENT design award for use of IT in Learning and Teaching.

## **IMPACT**

Measured against the FHI's small size and budget, the Institute has had an outsized global impact on academic research and public discussion.

### **Internet**

#### Stats

One simple metric of the public impact of the Institute's work is the number of people who read our papers and visit the various websites maintained by the Institute's members. The following figures give the average number of **unique visitors per day**. (Numbers of "page views" and "hits" are many times larger.)

NickBostrom.com (Bostrom's home page with preprints of his papers):	1,102
Global-Catastrophic-Risks.com (Academic material of global risks):	128
Simulation-Argument.com (Articles on the simulation argument):	1,223
OvercomingBias.com (Blog on rationality, bias, the future, etc.):	4,635
FHI site:	56
LessWrong.com (Community blog on applied rationality, with SIAI):	10,789
Practical Ethics in the News Blog (with BEP and Oxford Uehiro Centre):	350

Papers and postings on these websites and blogs have been cited in many peer-reviewed journals.

## Multimedia

The Institute has made available a number of well-received videos and audio podcasts of lectures and interviews with its staff, as well as 20 videos with lectures from its global catastrophic risks conference.

## **Media**

FHI members have made some 100 media appearances, including print, radio, and television appearances, since January 2009. (A far greater number of programmes and publications have quoted FHI researchers or cited our work.) This has promoted informed discussion and public debate to large audiences around the world---on all the world's continents save Antarctica.

Examples of media which have interviewed Bostrom or Sandberg over the past two years:

BBC television, New Scientist, National Geographic, The Guardian, ITV, Bloomberg News, Discovery Channel, ABC, Radio Slovenia, Wired Magazine, BBC world service, Volkskrant (German newspaper), Utbildningsradion (Swedish national radio), Mehr News Agency (Iranian), Mladina Weekly (Slovenian magazine), Jyllands-Posten and Weekendavisen (Danish newspapers), Bayerischer Rundfunk (German radio), The History Channel, O Estado de São Paulo Brazilian newspaper, Euronews, Kvallsposten (Swedish newspaper), City Helsinki (Finnish radio), Focus, Dutch Film and Television Academy, The Smart Manager (Indian magazine), Il Sole 24 Ore (Italian monthly), The Bulletin of the Atomic Sciences, Time Magazine, Astronomy Now, and Radio Bar-Kulan (Kenya).

FHI also occasionally provides "rapid response" to help journalists identify and analyse breaking news and critical issues in public debate.

## **Public lectures**

FHI researchers regularly speak at conferences and events targeted at academics, business leaders, policy makers, innovators, or the general public.

## Bostrom

Bostrom has given some 28 presentations over the past two years. A few examples will illustrate the range and character of the venues:

- Invited speaker at the Bloomberg BusinessWeek European Leadership Forum, which will be televised
- Keynote address at the Guardian Activate Summit in London

- Panellist at the Nexus Conference in Amsterdam's Concertgebouw, with Seyla Benhabib, Robert Kagan, Kishore Mahbubani (former president of the United Nations Security Council), Michael Sandel, and Dominique de Villepin (former Prime Minister of France)
- Keynote address to the TISA Symposium, London Chamber of Commerce
- Panellist at the Hard Problems in Social Sciences symposium, Harvard University
- Lecture to Oxford University Chancellor's Court of Benefactors
- Keynote address at the H+ Conference, London
- Two invited appearances at the 2009 World Science Festival, New York

### Sandberg

Sandberg has given at least 45 talks in the past two years, including invited lectures at e.g.,

- Google
- European Future Technologies Conference & Exhibition (Prague)
- Royal Society & The International Council for the Life Sciences
- EU SESTI project (Scanning for Emerging Science and Technology Issues, invited commentary)
- Stanford Maths Department
- Drugs Landscape 2030 Scenario Planning Workshop, organized for the Home Office
- CEA-LETI (MINATEC, Grenoble)
- Oxford Capital Partners Investment Forum
- UK Clinical Ethics Network Conference
- Hay-on-Wye Philosophy Festival
- H+ Conference

### Mandelbaum

Mandelbaum has recent or upcoming talks at Harvard, Oxford, and Ecole Normale Supérieure.

### **Policy advice**

Some examples:

### Bostrom

- World Economic Forum, events in Dubai and Doha, participating in the Summit on the Global Agenda; The Global Redesign Summit; and The Global Agenda Expert Council on Catastrophic Risks
- BAE Systems
- London-based Artificial General Intelligence start-up with ties the Gatsby Computational Neuroscience Unit, UCL
- Amlin, on systemic risk
- Booz Allen, on global risks
- Public Services Division, Prime Minister's Office, Singapore
- Cushing Academy (development of a curriculum for the 21st Century)

### Sandberg

- Represented the Oxford Martin School at a workshop organised by the Cabinet Office and Foresight UK to discuss the challenges facing the UK over the next ten years
- Invited by the Home Office to participate in the Drugs Landscape 2030 Scenario Planning Workshop
- Involved in setting up a research network, "A differential view of enhancement", within the Volkswagen Foundation (this unique interdisciplinary network will combine novel experimental comparisons of pharmaceutical cognitive enhancers, nutritional interventions, and training methods with computational modelling, and legal and ethical analysis)
- Involved in interdisciplinary project, "Prosthetic Perception", proposed to the Wellcome Trust to use functional design prototypes to investigate stakeholder views and ethical considerations for optogenetic visual prosthetics, an emerging neural interface technology
- Workshop organised by the Cabinet Office and Foresight UK to discuss the challenges facing the UK over the next ten years
- Royal Society pairing scheme, visiting Westminster and shadowing MP Peter Luff (mid-Worcestershire)
- Timbro Policy---governmental think tank in Sweden
- H+ Workshop for EU Parliament - Brussels
- If (Stockholm insurance company)
- Oxford Capital Partners Investment Forum
- Jane Street Capital (New York)
- IARPA (Intelligence Advanced Research Projects Activity) for US Government

- IZEW (International Centre for Ethics in Sciences and Humanities, Tübingen)
- "New Worlds – New Solutions" in Lund 7–8 July 2009, conference organized by the Swedish EU presidency. Participants collaborated to produce the Lund declaration on research and innovation for the next decade.
- Collaboration with Peter Eckersly at EFF (Electronic Frontier Foundation, San Francisco) on digital risks
- Collaboration with Svenska Smittskyddsinstitutet (The Swedish Institute for Infectious Disease Control) on the ethics of extremely large scale epidemiological simulations

### **Organized events**

- Cognitive Enhancement Workshop (1 day)
- Symposium on cognitive enhancement and related ethical and policy issues (1 day)
- Uncertainty, Lags and Nonlinearity: Challenges to governance in a turbulent world. Special Event co-hosted by the FHI and ELAC

FHI is planning an international conference, including three workshops, for January 2011.

## **ADDITIONALITY**

The Future of Humanity Institute was one of the original institutes created by the School. The FHI was not an outgrowth or expansion of any pre-existing centre, but an *ab initio* creation. The Institute director's post is wholly funded by the School. It is thus clear that the James Martin funding of the FHI has supported something entirely new.

### **Public and philanthropic support**

The FHI is a highly innovative academic endeavour, with no equivalent anywhere in the world. The Institute's mission is to bring careful thinking to bear on big-picture questions about humanity and its prospects. Staff frequently report on the vastly positive response they get when they talk about FHI's work to various audiences---people will often say how happy they are to learn that somebody is working on these issues, and they wish to see this work expanded.

The great level of interest in and support for the Institute's work is reflected in many indicators, such as the web site statistics, the number of invitations to give talks, the number of consultations for policymakers and business leaders, the large number of requests to translate or republish writings, and the frequent requests by students and scholars to visit the institute, and so forth.

Another indicator is the fact that the FHI receives a significant number of philanthropic donations from private individuals (about 10 over the last two years). For example, FHI has donations of a few thousand dollars from a (then) John Hopkins student who, after carefully considering different causes, judged that supporting the Institute's research represented the best philanthropic use of his savings.

### **Research Associates**

FHI leverages its own capacity by collaborating with a small set of carefully selected Research Associates. These are individuals who actively participate in FHI's work and make significant ongoing intellectual contributions. Each of our Research Associates has made a significant practical impact or received honours in the past two years. Their backgrounds and activities reflect the interdisciplinary and practical relevance of the Institute's work.

- Professor Robin Hanson (economics, physics): Inventor of "prediction markets", an institutional design for aggregating information, which is now being implemented by about a dozen leading U.S. companies
- Dr Guy Kahane (philosophy): Received a University Award from the Wellcome Trust
- Dr Jason Matheny (health economics): Now programme manager for the Intelligence Advanced Research Projects Activity, an office within the U.S. government that develops technologies for national intelligence
- Dr Toby Ord (philosophy, computer science): Received a British Academy Postdoctoral Fellowship and a Junior Research Fellowship at Balliol College; recently launched "Giving What We Can", sponsored by the FHI, a society for reducing suffering in the developing world through cost-effective charities; has received \$20,000,000 in pledges.
- Dr Milan Cirkovic (astrophysics, global catastrophic risk): Joining the Institute this fall

### **Intra-school synergies**

FHI is collaborating actively with many other institutes and initiatives within the Oxford Martin School, including:

#### Institute for Science, Innovation and Society

Sandberg has attended many of their seminars and has had extensive discussions with their research staff. He has also attended the seminars of the CABDyN Complexity Centre, which has close links to InSIS.

#### Oxford Institute for Ethics, Law and Armed Conflict

Sandberg has attended many of their seminars. FHI and ELAC have collaborated to organize a special event featuring an invited speaker (Homer-Dixon) and a respondent (Bostrom).

### Programme on Ethics and the New Biosciences

The FHI runs the joint James Martin Advanced Research Seminar together with BEP. FHI researchers have co-authored several papers with BEP researchers. The two projects also collaborate on a blog, on handling media inquiries, and they have organized several events together.

### International Migration Institute

FHI staff has attended their seminars

### Oxford Institute of Ageing

Sandberg has given a lecture for the Oxford Institute of Aging, and has attended their seminars and had discussions with their staff.

### Institute for the Future of the Mind

Sandberg has done research with their staff, resulting in a jointly-authored paper.

### Nanomedicine Institute

Discussion with staff, planning for future collaboration.

### Institute for the Future of Computing (Oxford Computing Laboratory and Oxford e-Research Centre)

Bostrom has had discussions with Professor Bill Roscoe and Professor Anne Trefethen, the co-directors of the new Institute for the Future of Computing. This has resulted in the development of an exciting new cross-cutting initiative within the School, the ***Programme on the Impacts of Future Technology***. The new Programme will also involve Professor David Deutsch. This new Programme will have strong synergies with FHI's work in one of its activity areas (future technology).

### **Work with Dr Ian Goldin and the School**

Sandberg was on part-time formal secondment to the School hub for a period of time, helping plan a possible master's program and working with Dr Ian Goldin on analysing systemic risks. Sandberg examined ways in which new technology increases or otherwise affects systemic risks, in particular by creating complex interdependences with very rapid feedback. As a spin-off from this research, a model of how substitutability affects the stability of a complex society was developed. Bostrom, too, has provided some occasional advice to Dr Goldin.

FHI staff have been regular participants at Directors meetings, Fellows meetings, and other events organized by the School. Staff have attended an estimated 70 individual events organized by the School or one of its constituent institutes (excluding FHI's own events).

FHI uses the School branding on its website and letterhead and when appropriate on other materials such as scholarly and popular publications, powerpoint presentations, job ads, JM seminar advertisements, and on flyers for special events and conferences.

FHI researchers have frequently represented the School to various stakeholders and potential collaborators. For example, Dr Sandberg Represented the Oxford Martin School at a workshop organised by the Cabinet Office and Foresight UK to discuss the challenges facing the UK over the next ten years. Professor Bostrom has helped represent the School at various events, such as to the Chancellor's Court of Benefactors, at meetings with industry representatives from companies such as Amlin and BAE, and at conferences.