UNIVERSITY OF
CAMBRIDGE

CENTRE FOR THE STUDY OF
EXISTENTIAL RISK

CAMBRIDGE CONFERENCE ON

FUTURE RISKS · GLOBAL SOLUTIONS

CATASTROPHIC RISK

2022

REAL CATASTROPHES

Tuesday 19 April -
Thursday 21 April 2022

CONTENTS

For more information on CSER, please visit our webite at CSER.ac.uk

Wi-Fi: Jesus College Guest
No password required

We are dedicated to the study and mitigation of risks that could lead to human extinction or civilisational collapse

CSER's research focuses on the identification, management and mitigation of possible extreme and existential risks associated with human activity.

Our goal is to bring together some of the best minds from academia, industry and the policy world to tackle this challenge. We focus especially on under-studied high-impact risks; those that might result in a global catastrophe, even if only with low probability. The challenges that CSER and our collaborators focus on will only grow more pressing over the years to come.

CSER produces world-leading research on topics ranging from biodiversity loss to the impacts of emerging technologies, engaging with policymakers at the national and international level, and launching major research initiatives in Cambridge.

Humanity's long-term potential is threatened by a range of global risks, which could have catastrophic consequences, including the possibility of civilizational collapse or human extinction. Some of these risks relate directly to advances in scientific and technological capabilities, including artificial intelligence, biotechnology, and nuclear weapons. Others stem from the unsustainable pressures humanity is placing on vital planetary systems. The complex, inter-related nature of the 21st century's global challenges means that none of these risks can be studied in isolation. The empirical challenges in assessing these risks are complicated by their global scale, complexity and unprecedented nature. This makes CSER's work and its approach ever more essential.

A Science of Global Risk

Global risks share many common challenges: how to develop robust methods for studying high impact/low probability events, how to engage with a truly global audience and how to translate research into policy impact. These create the opportunity to learn lessons across many different risks.

Risks associated with emerging and future technologies, impacts of human activity, global security threats, and global scale natural disasters threaten human extinction or civilization collapse. Managing these global risks is an urgent task - but one that poses particular difficulties and has been comparatively neglected in academia.

Our flagship research project is to develop, implement and refine a systematic approach to addressing how this class of risks can best be identified, managed and mitigated. At the core of this project we are working to develop new methods for studying global risks and their associated worst-case scenarios, engaging with diverse groups who have specific knowledge of, or influence over, these risks and building research impact and policy influence into everything we do. This builds on the work of our previous project Managing Extreme Technological Risks.

Our hypothesis

Safeguarding humanity's long-term future from these risks requires a science of global risk that is rigorous and creative; open to diverse groups; and capable of producing concrete proposals for risk management that can be implemented within the existing policy landscape. We are currently testing this hypothesis with the support of researchers from climate change, volcanology and biotechnology backgrounds, using methods such as horizon scanning, concept modelling, logic trees, impact assessment, policy co-creation and futures studies.

The project consists of three interwoven strands:
- Forecasting and Modelling Global Risk – to create new tools to forecast global risks and model interconnections between them, giving insight into how such risks emerge and how they can be managed.
- Designing Practical Solutions for the Management of Global Risk – to focus on the collaborative creation of practical policy proposals for the management of global risks.
- Growing the User Community for the Science of Global Risk – to foster a diverse set of global stakeholders focused on managing risk.

More information on CSER and all of its projects can be found at CSER.ac.uk

Tuesday, 19 April
FUTURE RISKS

09:00 Registration and coffee on arrival

09:30 Martin Rees, *Global Catastrophic Risk*

09:45 Jess Bland, *Strange Aids to Thought: Why Do Imagined Worlds Help Build Resilience to Very Real Catastrophic Risks?*

10:15 Icebreaker: *Humour and Existential Risk (part 1)*

10:30 Luke Kemp, *Foreseeing the End(s) of the World*

11:30 Coffee Break

12:00 Keynote: Tina Park, Addressing the Challenges of Inclusive Practises in AI Development

12: 30 Panel: Forecasting Future Risks from AI
With further reflections from:
- Jess Whittlestone, *Analytical Exploration of Future Risks*
- Shahar Avin, *Exploring Extreme Risks Through Roleplay*
- David Krueger, *Deep Learning, Scaling, Alignment and Existential Risk*

Questions and discussion

13:30 Icebreaker: *Humour and Existential Risk (part 2)*

13:35 Lunch

14:30 Lightning Talks *(see page 14 for further details)*

14:30 Foresight/Horizon Scanning workshop, Luke Kemp
This workshop will involve using the outputs of CSERs previous horizon scans in bioengineering, dual-use research of concern, and global health, to map out future catastrophic biological risks.

16:30 Coffee Break

17:00 Icebreaker: *Humour and Existential Risk (part 3)*

17:05 Keynote: Joachim Isacsson, *Tomorrow never dies: Bolts from the Blue and Creeping Crises, Disruptions in a Changing World*

18:00 Drinks and dinner

Wednesday, 20 April
REAL CATASTROPHES

09:15 Registration and coffee on arrival

09:45 SJ Beard, *How a Global Catastrophe Could Unfold*

10:15 Lara Mani, *'What works' for global catastrophic risk communication?*

11:30 Coffee Break

11:45 Keynote: Robin Gorna, *Communicating Risk and Uncertainty. Lessons Across Pandemics: From AIDS to COVID*

12:15 Panel: Learning From COVID-19 and Other Disasters
- Julius Weitzdörfer, *Lessons from Fukushima*
- Lalitha Sundaram, *AIDS and Other Chronic Diseases as GCRs*
- Jochem Rietveld, *Lessons from COVID*

Questions and discussion

1**3:15** Nandini Shiralkar, *CERI: A vision for the future*

13:30 Lunch

14:30 Lightning talks *(see page 14 for further details)*

14:30 Communications Workshop, Lara Mani
Exploring the use of scenario exercises as communication tools. Building on CSERs current work exploring scenarios for global catastrophic risks, this workshop aims to introduce you to scenario exercises and give you a taster of how they can be used.

16:30 Coffee Break

16:45 Ariel Conn, *Technology, Arts and a New Global Objective for the Future: an Introduction to TANGO Future*

17:00 Keynote: Bryan Walsh, *Reporting On the End of the World: The Challenge of Covering Long-Term Risks in a Short-Term Media World*

18:00 Evening in Cambridge, with different options

Thursday, 21 April
GLOBAL SOLUTIONS

09:00 Registration and coffee on arrival

09:30 Paul Ingram, *How can we best respond?*

10:00 Clarissa Rios Rojas, *CSER's Approach to Policy*
Outlining the co-creation of policy and research with academics and policy brokers through a GCR Science-Policy Interface group.

11:00 Coffee Break

11:20 Keynote: Jenty Kirsch-Wood, *UNDRR's Preparation for Systemic and Cascading GCRs*

11:50 Panel: Implementing Global Solutions
- James Ginns, *Private sector perspectives on risk management in government and its global application*
- Max Stauffer, *Engaging with Global Institutions*
- Shin-Shin Hua, *Regulation of AI: governing the ungovernable?*

Questions and Discussion

12:50 Comfort Break

13:00 Keynote: Oliver Letwin, *Planning for Catastrophe: Why Resilience Equals Fallback*

14:00 Closing remarks

14:10 Lunch

15:15 Policy workshop, Clarissa Rios Rojas
Building a GCR Science-Policy interface group for effective global governance.

17:15 Close of the conference

Tina Park, Head of Inclusive Research & Design at the Partnership on AI (PAI)

Tina works with impacted communities on equity-driven research frameworks and methodologies to support the responsible development of AI and machine learning technologies. Building on PAI's Methods for Inclusion project, this initiative aims to research, design, and pilot inclusive practices developed in collaboration with community-based, academic, policy, and corporate partners.

Joachim Isacsson, Assistant Head Futures, UK MOD Development, Concepts and Doctrine Centre

Colonel Joachim Isacsson is a Swedish Marine. For the past 9 years he's been permanently posted to the UK Ministry of Defence's Development, Concepts and Doctrine Centre. Joachim co-leads the Centre's Global Strategic Trends programme, which provides UK Government strategy units with an analysis of characteristics of plausible future worlds 30 years from now.

Robin Gorna, Vice-Chair, Technical Review Panel, Global Fund to fight AIDS, TB and Malaria

Robin's work on AIDS, human rights and gender equality began when she was a student when she became involved in early responses to AIDS as a volunteer at the Terrence Higgins Trust (the national AIDS charity) in London at the height of the epidemic in 1986 and published *Vamps, Virgins and Victims: How can women fight AIDS?* – one of the first books to describe the impact of AIDS on women. She continues to publish widely, including writing about the connections between COVID and AIDS.

Bryan Walsh, Editor of Future Perfect at Vox

Bryan is the editor of Vox's *Future Perfect* section, which is dedicated to covering the best strategies in policy, technology and philanthropy that can help make the future a better destination for all. He is the author of the 2019 book *End Times: A Brief Guide to the End of the World.*

Jenty Kirsch-Wood, Head of the Global Risk Analysis and Reporting Section at UNDRR (United Nations Office for Disaster Risk Reduction)

Jenty previously served as UNDP (United Nations Development Programme) Deputy Resident Representative in Kyrgyzstan and advised the Vietnam and Nepal Governments on climate change and disaster resilience issues. She also served as the OCHA's (United Nations Office for the Coordination of Humanitarian Affairs) climate and disaster policy focal point. She has nearly 20 years' experience working with UN agencies and non-governmental organisations in Iraq, Iran, Jordan, Azerbaijan, Indonesia, Bosnia and Herzegovina, Kenya and Somalia.

Oliver Letwin, Visiting Professor and Chair, Project for Peaceful Competition; Policy Institute, Kings College London

Before entering politics, Oliver was an academic at Cambridge, a civil servant in Margaret Thatcher's policy unit, and a Director of NM Rothschild. Currently, he is a Visiting Professor at KCL, where he chairs the Project for Peaceful Competition, a Vice President of the Great Britain China Centre and a member of the Advisory Council of the Bennett Institute for Public Policy at Cambridge.

David Krueger, University Assistant Professor, Department of Engineering, University of Cambridge

David is a machine learning researcher focused on AI alignment and deep learning. He is interested in AI existential safety including AI governance and global coordination. He has worked on many areas of machine learning, including: deep generative models, out-of-distribution generalization, understanding deep learning, reinforcement learning and reward modeling, Bayesian deep learning, regularizing recurrent neural networks, and incentive management.

Jess Whittlestone, Head of AI Policy at the Centre for Long-Term Resilience (CLTR)

Jess was previously a Senior Research Associate and Deputy Director of the AI: Futures and Responsibility Programme at the Centre for the Study of Existential Risk and the Leverhulme Centre for the Future of Intelligence.

Shahar Avin, Senior Research Associate at CSER

Shahar's research examines challenges and opportunities in the implementation of risk mitigation strategies, particularly in areas involving high uncertainty and heterogenous or conflicting interests and incentives. Shahar works with the existential risk community to identify and design opportunities for impact.

Julius Weitzdörfer, Research Affiliate at CSER

Julius was an Affiliated Lecturer at the Faculty of Law and Director of Studies in Law at Darwin College. He has a background in disaster law, nuclear law and Japanese law. At CSER, he worked on the project "Responsible Innovation and Extreme Technological Risk" under the direction of Professor Lord Martin Rees. Currently, he is Professor of East Asian Law, FernUniversität Hagen.

Lalitha Sundaram, Research Associate at CSER

Lalitha's researches bio-risk, with a particular emphasis on regulation and governance. She investigates risks – real or perceived – surrounding emerging biotechnologies such as synthetic biology. Before CSER, she worked within the University of Cambridge and Edinburgh's Arsenic Biosensor Collaboration where she developed a strategy to take this novel synthetic biology product from bench to field.

Jochem Rietveld, Research Assistant at CSER

Jochem works on the project 'Lessons from COVID-19' at CSER. He has a background in academia and has obtained his PhD in International Relations within the Marie Curie Horizon 2020 European Joint Doctorate Programme GEM STONES, in which he studied regional approaches to the Responsibility to Protect.

Ariel Conn, Cofounder & President, TANGO Future

Ariel is cofounder and president of the nonprofit, TANGO Future, and she's currently leading the IEEE-SA Research Group on Issues of Autonomy and AI for Defense Systems. Her work covers global diversity issues, autonomous weapons systems, AI ethics and policy, nuclear weapons, climate change, and other global catastrophic risks. Via TANGO and her other consulting work, Ariel seeks to bridge the communications and knowledge gaps between technical experts, policy makers, industry, and the public.

Shin-Shin Hua, Research Affiliate at CSER

Shin-Shin is a competition and tech lawyer. She is also a specialist in Public International Law, and has presented and published on the use of machine learning in lethal autonomous weapons. Her current research is focused on how antitrust/competition policy affects the strategic landscape for AI risk.

James Ginns, Head of Risk Management at CLTR

James works on how governments can build systems that are more resilient to the most extreme risks we face. He leads CLTR's work on Risk management systems, in order to transform approaches to governance and to the identification, assessment and mitigation of extreme risks

As well as having significant risk management expertise in the private sector, he has extensive experience in the non-profit sector.

Maxime Stauffer, CEO & co-founder, Simon Institute for Longterm Governance

Max is a senior science-policy officer at the Geneva Science-Policy Interface and a research fellow at the Global Studies Institute. Previously, he co-founded the Social Complexity Lab and Effective Altruism Geneva, where he now serves on the board. His background is in international relations, complex systems, and collective decision-making under uncertainty.

Martin Rees, Astronomer Royal and co-founder of CSER

Martin is a Fellow of Trinity College and Emeritus Professor of Cosmology and Astrophysics at the University of Cambridge. He was formerly the Master of Trinity College and President of the Royal Society. He is the author of a number of popular books, including *Just Six Numbers* and the existential risk-focused *Our Final Century?*

Jessica Bland, Deputy Director at CSER

Jessica has a background in science and technology policy, including working at the Dubai Future Foundation, the Royal Society and Nesta. She is interested in bringing technical expertise into public debate through programmes like the World Majlis at Expo 2020. Jessica was principal at School of International Futures until 2021, where she led strategic foresight projects for governments and NGOs. Her research interests include the ethics of technology innovation, working most recently with Professor Jodi Halpern at Berkeley.

SJ Beard, Academic Programme Manager at CSER

SJ works across CSER's research projects, including thinking about the ethics of human extinction; developing methods to study extreme, low probability, and unprecedented events; and building existential hope in the possibility of safe, joyous, and inclusive futures for human beings on planet earth. Their first book with Julius Weitzdörfer assesses injustice as a barrier to recovery from mega-disasters.

Paul Ingram, Academic Programme Manager at CSER

Paul was previously the Executive Director of the transatlantic British American Security Information Council (BASIC) 2007-19. Since 2019, he has worked closely with the Swedish Foreign Ministry crafting the Stepping Stones Approach. Paul set up and ran the Trident Commission (2011-14) that considered Britain's future nuclear weapon policy, and helped set up the Middle East Treaty Organisation in 2017.

Lara Mani, Research Associate in Communication and Outreach for CSER

Lara works towards building an empirical evidence base for a variety of outreach and communication techniques adopted to present global risk. She also works to understand how an improved knowledge of global risk can translate to action. Her PhD research aimed to establish the effectiveness of using video game technology in volcanic hazard education and communication practices in the Eastern Caribbean.

Luke Kemp, Research Associate in Foresight for CSER

Luke looks at the past (civilization collapses) and future (climate change and emerging technologies) to guide policy in the present. He is an honorary lecturer in environmental policy at the Australian National University (ANU), holds a PhD in international relations from the ANU and was previously a senior economist at Vivid Economics.

Clarissa Rios Rojas, Research Associate in Public Policy for CSER

Clarissa is a science diplomat, a government science advisor and, currently, a Research Associate at CSER, where she works at the interface of science and policy making. Clarissa conducts research on the risks coming from emerging technologies and also builds Science-Policy interfaces that can provide scientific evidence and advice to different policy stakeholders.

More information on speakers
can be found at
CCCR2022.com/speakers

Lightning Talks

The Lightning Talks are rapid 7-minute talks giving a taster introduction to a particular dimension relevant to the study of GCRs, with a brief opportunity for questions immediately afterwards.

Ross Tieman, Digital Fragility - Digitization of Critical Infrastructure and Increased Risk of Catastrophic Failures

Caroline Baylon, Tackling Interconnected Global Risks: The Need for Long-Term Thinking and a Multilateral Approach

Nora Ammann, Learning from Existing Complex Systems about Existential Risks and Alignment

Markus Reichstein, Existential risk - Emerging from Systemic and Compound Risk

Eamon Aloyo, The Catastrophic Risk Reduction Case for Funding Research on Stratospheric Aerosol Removal

Michael Cassidy, Large Magnitude Volcanic Eruptions as Global Catastrophic Risks and Existential Risk Factors

Anders Sandberg, Volcano Engineering Ethics

Felix Riede, Apocalypse Then, Apocalypse Now? Building Realistic Disaster Scenarios for Low-Frequency/High-Magnitude Volcanism in Europe Using the Laacher

Matthew Rendall, Nuclear War as a Predictable Surprise

David Denkenberger, Integrated Assessment of Food Production in Response to Global Catastrophic Food Risks

Alix Pham, Balanced Diets on Resilient Foods in Abrupt Sunlight Reduction Scenarios

Dennis M. Bushnell, Halophytes for Land, Water, Food, Energy and Climate

Behaviour Policy

Harassment, including racial and sexual harassment, harassment on the grounds of disability, or harassment on the basis of any other protected characteristic, is wholly unacceptable.

The University of Cambridge defines harassment as single or repeated incidents involving unwanted or unwarranted conduct towards another person which it is reasonable to think would have the effect of (i) violating that other's dignity or (ii) creating an intimidating, hostile, degrading, humiliating or offensive environment for that person.

This may include, but is not limited to:
- **Unwanted or offensive physical contact, sexual comments, sexual attention or innuendo.**
- **Offensive comments or jokes relating to gender, sexual orientation, disability, physical appearance, dress, body size, race or religion.**
- **Refusal to acknowledge a person's gender or identity, or threats to disclose a person's gender identity or sexuality to others.**
- **Controlling or coercive behaviour, intimidation or stalking, photographing or recording somebody without their consent, or sustained disruption of talks or other events.**

Website Links

Conference website
www.CCCR2022.com

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