

**ARTIFICIAL INTELLIGENCE: HOW LITTLE HAS TO GO WRONG?
AUTONOMOUS WEAPONS, DRIVERLESS CARS AND FRIENDLY SPIES IN THE HOME**

ABSTRACTS AND SPEAKERS' BIOGRAPHIES

**ON THE LOOP TO OFF THE LEASH:
DRONES, AUTONOMY AND THE FUTURE OF WARFARE**

Dr Peter Burt, Drone Wars UK

Autonomous weapons - weapon systems which can operate without direct human control - are often thought of as belonging to the realm of science fiction. However, rapid advances in the fields of robotics, sensors, and computing and artificial intelligence mean that such weapons are no longer a prospect of the future. Weapons systems exhibiting low levels of autonomy have been in operation for decades, and the use of drones in aerial warfare has now generated armed platforms which can be readily upgraded to higher levels of autonomy. Research is actively underway in the UK towards the development of such systems. Combined with the ability of modern computers to rapidly process vast quantities of data, autonomous armed drones signal the prospect of a worrying 'step change' in the nature of warfare. The United States' 'Global War Against Terror' has been largely enabled by technological developments in this direction. Artificial intelligence systems such as the US's 'Project Maven' and predictive computer systems being trialled by the UK's Joint Forces Command are already supporting battlefield operations. The presentation will review such developments and outline steps which concerned scientists can take to register their opposition to them.

Dr Peter Burt graduated in the biological sciences, and then worked for a government environmental regulator for seven years before moving to the NGO sector. Working initially on sustainable development issues, he then moved to Nuclear Information Service to work in the role of Research Manager, and is currently undertaking research work into autonomous weapon systems at Drone Wars UK. As a committed troublemaker, he has helped to pioneer the use of the Freedom of Information Act as a weapon in nuclear disarmament campaigning. Among his achievements he has been arrested for protesting on the roof of the House of Commons, on the roof of the Sellafield Mox Plant, and on the roof of a nuclear warhead convoy truck, as well as in numerous other locations.

ROBOTICS ETHICS: THE ETHICS OF SCIENTIFIC KNOWLEDGE AND TECHNOLOGY

Prof John Finney

Robots can help humanity, and they have done so since the mid-20th century. While initially being mostly used for industrial and military applications, they are currently emerging in other areas, such as transportation, healthcare, education, and the home environment. Early robots were programmed to do clearly defined tasks. These we can usefully categorise as *deterministic* robots: their actions are controlled by a set of algorithms whose actions can be predicted. Contemporary robotics, however, is increasingly based on artificial intelligence (AI) technology, with human-like abilities in sensing, language, interaction, problem solving, learning, and even creativity. The main feature of such *cognitive* robots is that their decisions are unpredictable, and their actions depend on stochastic situations and on experience. They can make decisions in complex situations, decisions that cannot be predicted by a programmer. The increasing presence of cognitive robots in society can affect human behaviours and induce social and cultural changes. They also raise serious issues related to accountability, safety, privacy and human dignity.

In considering ethical aspects of robotic systems, this distinction between deterministic and cognitive robots is important. A scheme is suggested which argues where responsibility for a (deterministic or cognitive) robot's action should lie and how effective regulation might be accomplished. The consequent recommendations of a recent UNESCO report on robotic ethics will be summarised, with particular reference to armed drones and autonomous vehicles and weapons.

Prof John Finney is Emeritus Professor of Physics at University College London. His Ph.D. on liquid structure was supervised by J.D. Bernal in the Crystallography Department at Birkbeck College London, where he was subsequently awarded a personal chair in Crystallography. His research has focussed on liquids and disordered solids, with particular reference to structure and (chemical and biological) functionality in aqueous solutions. In 1988 he was appointed Head of Neutron Science, and subsequently Chief Scientist, at the ISIS Pulsed Neutron Facility, moving to UCL in 1993 to found the Condensed Matter and Materials Physics group. He is a Fellow of both the Institute of Physics and the Royal Society of Chemistry and past Vice President of the British Crystallographic Association. A founder-member and past Vice President of Euroscience, he was Founder Editor of Euroscience News. Since 2000 he has worked extensively within the Pugwash movement, serving on its Council and Executive Committee from 2007-2013. A past chair of British Pugwash, he has worked specifically on raising awareness of nuclear weapons, technical aspects of nuclear weapon dismantlement, and the effects of emerging technologies on antisubmarine warfare. Since 2013 he has represented Pugwash on UNESCO's World Commission on the Ethics of Scientific Information and Technology COMEST.

THE WAY YOU MAKE ME FEEL: AN INTERACTIVE SESSION ABOUT OUR RELATIONSHIP WITH ROBOTS

Sarah Woods, Playwright and Activist

Sarah Woods finds herself in a conversation with Pepper the robot and is left wondering what lies behind our complex and often contradictory relationships with non-human entities. On the one hand, we want them to help us and to care for vulnerable people – to have characters and to understand how we feel. On the other, we're developing them to be faceless, intelligent killers. This session explores the spectrum of our developing relationship with robots – and what we project onto the things we create.

Sarah Woods creates performances, films, events and campaigns in collaboration with communities, scientists, economists and specialists. Her theatre work has been produced by the RSC, The Hampstead, Soho Theatre and the BBC, regional theatres and touring companies. She also collaborated with the New Weather Institute on the short play, *Neoliberalism: The Break-Up Tour*, written and produced jointly with Andrew Simms, and commissioned by ArtsAdmin. Other recent productions includes: *After Hiroshima* (London Bubble); *META* (Cardboard Citizens/Wellcome Trust); *The Roadless Trip* (Artsadmin, UK tour), a performance piece about systemic change; *Benefit* (Cardboard Citizens, UK tour) looking at recent changes to the benefit system. Many of her plays are published by Oberon Books.

Sarah has written extensively for BBC Radio 4, most recently *Borderland*, imagining a possible post-Brexit UK, an adaptation of William Morris' *News From Nowhere*; *A Speck Of Dust* about austerity and inequality; original drama-documentaries about climate change *Getting To Zero* and *Getting To Four Degrees*; and *Watch Me* looking at the neuroscience and lived experience of empathy. And, she has recently been commissioned to adapt Karl Marx' *Das Kapital* for BBC Radio. For Birmingham Opera, Sarah has written an original opera with the composer Giorgio Battistelli, and worked on The Co-operative Group's Anti Tar Sands and Frack Free UK campaigns, the Fabian Society's Food and Poverty Commission, and the Centre for Alternative Technology's Zero Carbon: Making it Happen project. She is currently working on National Clean Air Day, and the Ashden Trust's Visioning London project. She ran the MPhil in Playwrighting at Birmingham University from 2002 to 2006 and currently teaches playwrighting and Art For Change at Manchester University. Sarah is Cardboard Citizens' Narrative Artist and a Wales Green Hero.

SELF-DRIVING CARS: THEIR SOCIAL, ETHICAL AND ENVIRONMENTAL IMPLICATIONS: A GROUP CONVERSATION

Perry Walker, Talk Shop

Talk Shop uses discussion kits. Each kit is for six people. It contains a deck of cards, with each card having a chunk of information about the topic, plus instructions and feedback forms. Each small group will look at the background to the topic of driverless cars, then choose two out of the following list of topics:

1. When and how should we introduce driverless vehicles into Britain?
2. What will be the biggest effects of driverless vehicles on jobs and the economy?
3. What will be the most significant effects on human behaviour – and what should we do about them?
4. What are the biggest risks associated with Autonomous Vehicles?
5. What would you like the effect of driverless vehicles to be on vehicle ownership and public transport?
6. What will be the biggest effects of AVs on the environment and health?

Each topic is discussed for half an hour or so. Towards the end of that period, the group agrees and records its response to the questions.

Perry Walker is a facilitator and an innovator who has developed a variety of participatory methods. Among these, he is the founder of www.openupuk.org. He is also a founder of Talk Shop. He is a Fellow both of the New Economics Foundation, where he used to work, and of Involve, where he used to be a trustee. He is currently writing a book called *We Need to Talk About Everything*.

ARTIFICIAL INTELLIGENCE: HOW LITTLE HAS TO GO WRONG? OVERVIEW AND RESULTS OF SGR SURVEY

Andrew Simms, Assistant Director, Scientists for Global Responsibility

Andrew will give a short overview of the recent debate on the roles of artificial intelligence and automation in society and the economy, including the results of a survey on attitudes to the subject among members and supporters of Scientists for Global Responsibility. How broad are the implications of AI and automation, how well are we prepared to manage its risks, how good are we at predicting longer term outcomes? These questions and what people consider to be the greatest challenges of AI and automation will be covered.

Andrew Simms is a political economist, environmentalist and recently appointed Assistant Director of Scientists for Global Responsibility. He is also co-director of the New Weather Institute, a research associate at the Centre for Global Political Economy, University of Sussex, and a fellow of the New Economics Foundation (NEF), where he was policy director for over a decade. During that time he founded NEF's work programme on climate change, energy and interdependence, instigated their 'Great Transition' project, and ran work on local economies coining the term 'clone towns' to describe the homogenisation of high streets by chain stores. His books include *'Tescopoly'* on the supermarket Tesco's dominance of the grocery market, *'Ecological Debt: the Health of the Planet and the Wealth of Nations'*, co-authored *'The New Economics'*, and *'Eminent Corporations: the Rise and Fall of the Great British Corporation.'* and edited *'Do Good Lives Have to Cost the Earth?'*. He was part of the group which produced the 'Green New Deal' a joint policy response to the financial crisis and he devised the concept of 'ecological debt day' to illustrate when in the year we begin living beyond our environmental means. He was described by *New Scientist* magazine as 'a master at joined-up progressive thinking' and his current work focuses on the dynamics of achieving rapid economic transition in the time frame determined by meeting climate change targets, and developing new economic narratives. His latest book *'Cancel the Apocalypse: the New Path to Prosperity'* is manifesto of new economic possibilities, and he is currently writing, with David Boyle, the appropriately titled 'A Crash Course in Economics.' He tweets at: @andrewsimms_uk website: www.newweather.org

SGR is part of the campaign awarded the Nobel Peace Prize in 2017