



INTELLIGENT MACHINES SMART POLICIES

#GoingDigital

26-27 October 2017

OECD, Paris

oe.cd/ai

BACKGROUND AND OBJECTIVES

Last year Stephen Hawking controversially claimed that artificial intelligence (AI) will be “either the best or worst thing” for humanity. While AI is expected to deliver considerable benefits, it also creates new challenges and questions linked, for instance, to the future of work, privacy, competition, transparency and liability, governance, and public research. Learning algorithms already greet us on our digital devices, influence our purchases, govern our newsfeeds, and will soon drive our cars. What sort of policy and institutional frameworks and values should guide AI design and use, as autonomous and self-taught machines become part of our everyday lives? And as AI permeates economies and societies, how can we ensure that it benefits society as a whole? Such questions become increasingly important to address and the global co-operation of all stakeholders is needed more than ever.

The OECD conference “*AI: Intelligent Machines, Smart Policies*” will bring together policymakers, representatives of civil society and AI experts from industry and academia to discuss opportunities and challenges and the role of policy and international co-operation. We welcome Government delegates from a range of domains, including: digital economy ministries, labour ministries, space agency representatives, research ministries, data protection authorities, and consumer protection agencies. This event is a part of the OECD’s wider “[Going Digital](#)” project, which aims to give policymakers the tools they need to help their economies and societies prosper in a world that is increasingly digital and data-driven.

The Conference is organised by the OECD Committee on Digital Economy Policy (CDEP) with support from the Ministry of Internal Affairs and Communications of Japan (MIC) and in co-operation with the parts of the OECD that focus on [the future of work](#); [scientific and technological policy](#); [space](#); [consumer product safety](#); and [information security and privacy](#). The Conference is consistent with the Takamatsu Declaration of April 2016, in which G7 ICT Ministers meeting in Japan agreed to facilitate ICT technology R&D in the area of Artificial Intelligence and also responds to their renewed commitment in Turin in September 2017 “to further multistakeholder dialogue and to advancing our understanding of A.I. cooperation, supported by the OECD” (2017 G7 ICT & Industry Ministerial Declaration, Annex 2).

Contact information: For more information about the conference please contact Karine Perset at karine.perset@oecd.org, Nobu Nishigata at nobuhisa.nishigata@oecd.org, Yuki Yokomori at yuki.yokomori@oecd.org, Anna-Sophie Liebender at anna-sophie.liebender@oecd.org, Cristina Serra Vallejo at Cristina.Serra-Vallejo@oecd.org, and Sarah Ferguson at Sarah.Ferguson@oecd.org. Please note that due to space constraints, participation in this event is by invitation.

Delegates are encouraged to download the google arts & culture app for android and ios before the event at g.co/artsandculture.

Up-to-date schedule information will be available at: oe.cd/ai

CONFERENCE CHAIR

Wonki Min, Chairman, OECD Committee on Digital Economy Policy (CDEP), Republic of Korea

Thursday 26 October 2017 - AI DEVELOPMENTS & APPLICATIONS, CC 1

9:00 – 9:05 **KEYNOTE ADDRESS**

Garry Kasparov, Former World Chess Champion and author of ‘Deep Thinking’ (by video)

9:05 – 9:20 **WELCOME REMARKS**

Andrew Wyckoff, STI Director, OECD

Masahiko Tominaga, Vice-Minister for Policy Coordination, Ministry of Internal Affairs and Communications (MIC), Japan

9:20 – 10:50 **SESSION 1. THE STATE OF AI RESEARCH**

Session 1 will introduce the distinctive characteristics of AI and machine learning. It will provide an overview of milestones to date in AI development and of expected future milestones. For example, standalone AI is expected to evolve towards AI networks in which AIs communicate and interact. The session will describe some of the focus areas of both private and public investment in AI research. The session will also introduce the link between AI and robotics.

Session moderator: **Kenneth Cukier**, Senior Editor, The Economist, United Kingdom

Francesca Rossi, Research Scientist, IBM Watson and Professor of Computer Science, University of Padova, Italy – *Human-AI Collaboration: Technical & Ethical Challenges*

Stuart Russell, Professor of Computer Science, University of California, Berkeley, USA – *Human-compatible artificial intelligence*

Rodolphe Gelin, Robotics Software Engineering Lead, SoftBank Robotics, Paris – *Robots, Man’s Best Friend*

Osamu Sudoh, Professor, University of Tokyo Interfaculty Initiative in Information Studies, Japan – *Towards AI Network Society - Addressing Social, Economic, Ethical and Legal Issues*

Philipp Slusallek, Scientific Director at DFKI, Germany – *Artificial Intelligence and Digital Reality: Do we need a "CERN for AI"?*

10:50 – 11:20

COFFEE BREAK, ATRIUM (NEXT TO CC 1)

GOOGLE ARTS & CULTURE MACHINE LEARNING EXPERIMENTS

Google Arts & Culture has collaborated with over 1,200 international museums, galleries and institutions from 70 countries to make their exhibits available for everyone online. Participants are encouraged to download the Google Arts & Culture app for Android and iOS before the event at g.co/artsandculture.

FACEBOOK 360 INNOVATION TOUR

Using Samsung Gear VR powered by Oculus, viewers will experience and obtain explanations about the latest technologies being developed at Facebook including artificial intelligence, virtual reality, connectivity, infrastructure, and the Facebook hardware labs.

11:20 – 12:40 **SESSION 2. AI APPLICATIONS AND CASE STUDIES**

This session will illustrate how AI is being applied to make better decisions, reduce costs and improve productivity in a variety of domains. In environmental applications, AI can find complex causalities among environmental variables and optimise resource use. In health, AI can help detect conditions early, deliver preventive services and discover new treatments. In transportation, autonomous driving and optimised traffic routes can facilitate efficient travel and save lives. In security, AI can help identify & combat real-world and cyber threats. More broadly, AI is finding valuable application wherever intelligence is deployed, including unexpected areas such as arts & culture and services.

Session moderator: **Andrew Wyckoff**, STI Director, OECD

Valerio Dilda, Partner, Paris, McKinsey & Company – *AI : perspectives and opportunities*

Reinhard Stolle, Department of Artificial Intelligence at BMW AG, Munich – *AI as a driver of the automotive industry*

Max Yuan, founder and chairman, Xiaoi Robot Technology, Shanghai – *AI empowers government and enterprises*

Lynette Webb, Senior Manager, European Policy Strategy, Google, London – *Machine learning in action*

12:40 – 13:40 **LUNCH BREAK** (Salles Roger Okrent & George Marshall, Château de la Muette)

13:40 – 15:00 **SESSION 3. CLOSE-UP ON AI IN SPACE APPLICATIONS**

In the space industry, new and improved satellite data and signals combined with AI are powering innovative products and services in sectors such as finance, agriculture, land use, and disaster management. In this session, innovative start-ups and administrations will illustrate the growing connections between AI and satellites.

Session moderator: **Claire Jolly**, Head of the OECD Space Forum

Tugdual Ceillier, Lead Data Scientist, EarthCube, Toulouse – *Artificial Intelligence and Remote Sensing: New Capabilities to Monitor Infrastructure*

Bryan Yates, Director of Sales - EMEA region, Orbital Insight, Mountain View, California – *New Geoanalytics: Tracking Economies From Space*

Thanh-Long Huynh, CEO, Quanticube Technology, Paris – *Satellite Data and AI in Financial Services: Micro and Macro Predictions*



Bahaa Alhaddad, Space Business Development, Starlab Space, Harwell Oxford, United Kingdom – *Neurosciences and Space Data: A New Big Bang*

Alexander Cooke, Counsellor, Department of Industry, Innovation and Science, Australia – *Digital Earth Australia*

Christophe Roeland, Policy Officer, Space Data for Societal Challenges and Growth, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, EC, Brussels – *EC perspectives on the Earth observation revolution*

15:00 – 16:20 **SESSION 4. ENHANCING DISCOVERY – THE ROLE OF AI IN SCIENCE**

AI promises to improve research productivity at a time when ideas are becoming harder to find, pressure on public research budgets is increasing, and global challenges require scientific breakthroughs. This session will explore the opportunities and challenges of applying AI in science, by examining: current and emerging uses of AI and machine learning in science; limitations in using AI in science; the opportunities to increase research productivity; challenges posed for researchers; and, issues raised for institutions (including science education), research sponsors and policymakers.

Session moderator: **Dominique Guellec**, Head of OECD Science and Technology Policy Division

Stephen Roberts, Professor of Machine Learning in Information Engineering, University of Oxford, United Kingdom – *21st Century Science: The Age of Intelligent Algorithms*

Hiroaki Kitano, President and CEO of Sony Computer Science Laboratories, Japan – *The Nobel Turing Challenge: Creating the engine of scientific discovery*

Ross King, Professor of Machine Intelligence, Manchester University School of Computer Science, United Kingdom – *The Automation of Science*

Jonathan McLoone, Technical Director, Wolfram Research Europe – *Preparing science for AI: Rethinking education, research and publication*

16:20-16:50 **COFFEE BREAK AND INTERACTIVE DEMONSTRATIONS, ATRIUM**

- **GOOGLE ARTS & CULTURE MACHINE LEARNING EXPERIMENTS**
- **FACEBOOK 360 INNOVATION TOUR**

16:50 – 18:30 **SESSION 5. AI POLICY LANDSCAPE**

This session will provide an overview of the AI policy landscape, covering national and non-governmental initiatives. Governments and a range of institutions are holding national consultations on opportunities and challenges associated with AI and developing national AI-related strategies that often intersect with robotics. Stakeholders from the private sector, research communities, civil society and trade unions are actively examining AI-related issues. For example, some of the most active AI companies have engaged in a “Partnership on Artificial Intelligence to Benefit People and Society”; the IEEE Standards Association has created the “Global Initiative for Ethical Considerations in the Design of Autonomous Systems”; and AI-focused foundations and institutions are developing. The discussion will begin to identify commonalities and differences between value sets to help technologists design AI systems compatible with societal norms. It will discuss the degree to which existing policies are sufficient to address challenges presented by AI.

Session moderator: **Anne Carblanc**, Head of OECD Division on Digital Economy Policy

NON-GOVERNMENTAL INITIATIVES

David Heiner, Strategic Policy Advisor at Microsoft Corporation and representative of the Partnership on Artificial Intelligence – *Enabling the Promise of Artificial Intelligence*

Nicolas Mialhe, Director for Artificial Intelligence, The Future Society @ Harvard Kennedy School of Government – *Harnessing the power of collective intelligence to govern the rise of AI: the case of “algorithmic transparency & accountability”*

GOVERNMENTAL INITIATIVES

ITALY: **Benedetta Arese Lucini**, Italy – *G7 Italy : towards a human centric AI*

JAPAN: **Susumu Hirano**, Faculty of Policy Studies/Professor, Dean, Graduate School of Policy Studies, Chuo University – *AI R&D Guidelines*

FRANCE: **Cédric Villani**, député LREM de l’Essonne, chargé de mission IA – *Overview of AI Policy Initiative in France*

CHINA: **Xiao Zhang**, Vice Director, China Internet Network Information Center – *The Overview of China’s Digital Economy and AI Policy*

FINLAND: **Pekka Sivonen**, Director, Digitalisation Strategy and Programmes, Tekes Innovation Funding Agency, Finland – *Ambitious development programs enabling rapid growth of AI and Platform Economy in Finland*

ESTONIA: **Marten Kaevats**, National Digital Advisor, Government Office of Estonia – *Estonia’s ideas on legalising AI*

EUROPEAN COMMISSION: **Cécile Huet**, Deputy Head of Unit, Robotics and Artificial Intelligence, EC, DG CONNECT – *European Commission’s initiatives on AI*

18:30 **COCKTAIL RECEPTION** (Salles Roger Okrent & George Marshall, Château de la Muette)



Friday 27 Oct. 2017 - PUBLIC POLICY CONSIDERATIONS RAISED BY AI, CC12

CONFERENCE CHAIR

Wonki Min, Chairman, OECD Committee on Digital Economy Policy (CDEP), Republic of Korea

9:30 – 11:00 SESSION 6. EMPLOYMENT & SKILLS

The use of AI should improve the efficiency with which goods and services are produced, increasing overall well-being as productivity increases and prices fall. However, the exponential growth of the AI capabilities and applicability raises concerns about job automation and the possibility of massive technological unemployment, but also about the downwards impact on the wages of workers who are most at risk of being displaced. The session will discuss the impact of AI on the labour market and the role of skills, social and labour market policies and institutions in helping countries to weather the digital transformation and translate productivity gains into higher well-being for all.

Session moderator: **Mark Keese**, Head of OECD Division on Skills and Employability

Frank Levy, Rose Professor Emeritus, MIT – *Computers and Populism*

Christina Colclough, Senior Policy Advisor, UNI Global Union – *Putting people and planet first - ethical AI enacted*

James Hairston, Head of Public Policy, Oculus VR, Facebook – *AI, Employment, and General Purpose Technologies*

Stuart Elliott, Director of Board on Testing and Assessment, US National Academy of Science – *AI and the Future of Skill Demand*

Young Tae Kim, Secretary General, International Transport Forum (ITF) – *New Transport for the new Digital Age*

11:00 – 11:30 COFFEE BREAK AND INTERACTIVE DEMONSTRATIONS, ATRIUM

- **GOOGLE ARTS & CULTURE MACHINE LEARNING EXPERIMENTS**
- **FACEBOOK 360 INNOVATION TOUR**

**11:30 – 12:30 SESSION 7. PRIVACY & SECURITY**

Data generated by users, consumers and businesses are used to train machine learning algorithms, which require vast amounts of data to recognise patterns efficiently. This session will examine how machine learning approaches combined with ever-increasing amounts of personal data affect the principles of data protection, and in particular individual consent, and what actions are needed to help guide AI developments towards social goals and in the respect of privacy and equity. The session will also discuss new security risks linked to misuse of AI through negligence or malice, for example of malware abusing an AI network system or an autonomous weapon.

Session moderator: **Katarina de Brisis**, Deputy Director General at Ministry of Local Government and Modernisation, Norway, Chair of OECD Working Party on Security and Privacy in the Digital Economy

Peter Fleischer, Global Privacy Counsel, Google – *Privacy and AI: designing machine learning systems to respect privacy*

Taylor Owen, Assistant Professor of Digital Media and Global Affairs, University of British Columbia –

Mathias Cellarius, Data Protection and Privacy Officer, SAP – *AI: Challenges and Opportunities for Data Protection*

Kenneth Cukier, Senior Editor, The Economist, United Kingdom – *Do privacy laws obstructs beneficial uses of data*

12:30 – 14:00 LUNCH BREAK (Lunch not provided, several options available at the site and nearby)**14:00 – 15:00 SESSION 8. SAFETY, RESPONSIBILITY & LIABILITY**

AI-driven automated decision-making raises questions of safety, responsibility and liability, for example when accidents involve autonomous vehicles. The session will discuss responsibility for AI-powered decisions and the respective roles of actors such as AI software developer, hardware provider, owner, driver/passenger etc. It will examine the applicability of existing mechanisms such as insurance to deal with risks and whether legal clarification is necessary.

Session moderator: **Wonki Min**, Chairman, OECD CDEP, Republic of Korea

Rod Freeman, international products lawyer, Partner at Cooley, UK – *Evolution or revolution? The future of regulation and liability for AI*

Hans Ingels, Head of Unit, Single Market Policy, Mutual Recognition and Surveillance, European Commission, DG GROW – *Artificial Intelligence and EU Product Liability Law*

Pierre Chalançon, Chair of the BIAC Consumer Task Force and Vice President Regulatory Affairs, Vorwerk & Co KG, Representation to the EU – *Science-Fiction is not a Sound Basis for Legislation*

Georg Borges, Professor, Faculty of Law, Saarland University, Germany – *Liability for machine-made decisions: gaps and potential solutions*

15:00 – 16:00 **SESSION 9. TRANSPARENCY, OVERSIGHT & ETHICS**

This session will examine how to ensure that AI-powered decisions that impact people are fair, transparent and accounted for while preserving legitimate commercial confidentiality and productivity. Issues are already manifest in critical areas such as determining priorities in hospital line-of-care, autonomous vehicle emergency responses, criminal risk-profiling and preventive policing, and access to credit and insurance. The session will also discuss: public acceptance of AI, risks of algorithms amplifying social biases and discrimination; the growing difficulty of understanding AI algorithms' decisions; the role of new technologies that can explain the rationale for an algorithm's decision; respective stakeholder roles; and cost considerations for developing and implementing algorithmic accountability solutions at scale.

Session moderator: **Doug Frantz**, Deputy Secretary-General, OECD

Konstantinos Karachalios, Managing Director of the IEEE-Standards Association – *The role of technical communities in making intelligent technologies work for the benefit of humanity*

Joanna Bryson, Reader at University of Bath, and Affiliate, Center for Information Technology Policy at Princeton University – *Current and Potential Impacts of Artificial Intelligence and Autonomous Systems on Society*

Carolyn Nguyen, Director of Technology Policy, Microsoft – *Designing AI to Earn Trust*

Seán Ó hÉigeartaigh, Executive Director of Cambridge's Centre for the Study of Existential Risk – *The Asilomar Principles*

16:00 – 16:30 **COFFEE BREAK AND INTERACTIVE DEMONSTRATIONS, ATRIUM**

- **GOOGLE ARTS & CULTURE MACHINE LEARNING EXPERIMENTS**
- **FACEBOOK 360 INNOVATION TOUR**



16:30 – 18:00 **SESSION 10. WRAP-UP AND NEXT STEPS**

Session moderators will first be invited to briefly summarise the key points that arose from their panel discussion. Stakeholder group representatives will then be invited to provide their perspective on the issues discussed. A discussion on next steps will follow, focusing on the key challenges to be addressed and respective roles of industry self-regulation, policy interventions, multi-stakeholder co-operation, and international dialogue. The session will consider the degree to which new/specific policies may be needed to address new challenges presented by AI and discuss the role of international co-operation.

Chair: **Wonki Min**, CDEP Chair

BRIEF REPORTS BY SESSION MODERATORS: **Kenneth Cukier, Andrew Wyckoff, Claire Jolly, Dominique Guellec, Anne Carblanc, Mark Keese, Katarina de Brisis, Wonki Min, Douglas Frantz**

STAKEHOLDER PERSPECTIVES:

Marc Rotenberg, representative of OECD Civil Society Information Society Advisory Council (CSISAC) and President, Electronic Privacy Information Center (EPIC)

Anna Byhovskaya, Policy Advisor, Trade Union Advisory Committee to the OECD (TUAC)

Nicole Primmer, Senior Policy Director, Business at OECD (BIAC)

Clara Neppel, Senior Director, IEEE European Office, Internet Technical Advisory Committee (ITAC) representative

DISCUSSION