

# How should developments in AI be regulated over the next 25 years?

Panel discussion at AI 2019, Peterhouse College, Cambridge.

These notes were compiled by Prof. Adrian Hopgood, University of Portsmouth and Andrew Lea, University of Brighton.

## Discussion Brief

The term “artificial intelligence” is receiving prominence it never had before. Whilst much of that “AI” is simply “computer programs”, a substantial proportion is either genuine AI technique or derivative. With prominence or wide-spread use comes the discussion - or even threat - of regulation.

This discussion may include such elements as:-

- What is the nature of “AI” that makes it different from “ordinary” software, and therefore requires particular regulation?
- What are the ethical implications of AI that mean regulation should even be considered?
- What alternatives are there to regulation? Eg code of conduct? No regulation?
- Why is ordinary regulation - eg GDPR - not sufficient?
- How could AI be regulated, given that, by its very nature, it is frequently non-deterministic and learns in-flight and therefore can (correctly) exhibit unexpected behaviours?
- What sort of regulation should be applied specifically to AI?
- Who should we trust to determine any regulations? Who should that regulatory body be?
- Could an over-strong or simplistic regulatory framework simply hinder development of AI in the UK?
- Would regulations need to be global to be effective? If so, how are global regulations to be agreed?
- Assuming AI has a rapid development (will it?) over the next 25 years, how can regulations be future-proofed?
- Should the development, rather than the deployment, of AI be regulated?
- Will regulations ever need to consider “machine rights”?

## Panel Members

**Penny Duquenoy** as Associate Professor of ICT ethics at Middlesex University, London, has been actively involved in ethics groups at BCS since 2001 and is currently Chair of BCS ICT Ethics SG. As an academic teaching and researching computer ethics as Associate Professor, now Visiting Researcher, at Middlesex University, London she has focussed on embedding ethics during project design and development.

**Dr. Kevin Maynard**, Co-director Institute for Ethical AI, Oxford Brookes University. This is a new institute funded by Research England to help companies in the professional services sector adopt AI. The ambition is to increase trust in AI.

**Dr. Detlef Nauck**, BT Research, is a Chief Research Scientist for Data Science with BT’s Applied Research Division at Adastral Park, Ipswich. Part of his role is leading the initiative on the

development and use of responsible and Ethical AI in the company. He is a visiting Professor at Bournemouth University and has published many books and papers.

**Chris Rees is Immediate Past President and Senior Trustee of the BCS.** During his presidential year, he took the Ethics of AI as his theme. He undertook research on the topic and spoke to many professional and lay audiences throughout the UK, as well as in Europe, Sri Lanka, Mauritius and Australia. He has recently spoken about AI ethics and the legal implications to lawyers' conferences in Edinburgh and Poland.

**Andrew Lea**, panel chair is a graduate of this (Cambridge) University in Natural Sciences, He is a Fellow of the BCS and the RSA, and a Visiting Research Fellow at the University of Brighton. He has been applying AI to practical problems for the last 30 years, from fraud discovery to Mars Landers. His current research centres on the practical use of artificial sentience.

## Chair's Introduction

The term "artificial intelligence" is receiving prominence it never had before. Whilst much of that "AI" is simply "computer programs", a substantial proportion is either genuine AI technique or derivative. With prominence or wide-spread use comes the discussion - or even threat - of regulation.

In this session we will discuss what need there is for the regulation of AI. And if there is a need, what should that regulation be? Will regulating AI simply place countries with that regulation at a disadvantage to others?

Why might there be a need for regulation of deployed AI? After all, is it not simply "computer programs" and therefore subject to the already existing and sufficient regulations such as GDPR or the Air Navigation Order?

Arguably AI should be regulated by the cases to which it is put. Self-driving cars need regulation whether they are steered by AI, non-AI software, or highly trained meerkats.

However, AI does have huge potential impacts both positive and negative, in fields such as medicine or on employment, so perhaps it is a unique case.

Finally, we could worry that those who create the regulations do not understand the unique defining characteristics of AI: that it learns and can be non deterministic. The "wrong" regulations could prove disastrous.

## Panel Opening Remarks

*Chris Rees:*

- Regulations apply in other industries e.g. banking, aircraft etc.
- AI regulation: vertical or horizontal or both?
- Plastic bags as an example of regulation for a better level playing field.
- Which stakeholders to consult? Model may be out of date soon.
- Global AI: different cultures and systems around the world.
- EU has clout, as GDPR shows.
- Software as product or service? Who is responsible? Regulate development or deployment?

*Kevin Maynard:*

- Management of risk.
- Definitely expect regulation for autonomous vehicles (serious consequences), but not necessarily for Netflix recommender (less serious consequences).
- High risk, high regulation. Low risk, low regulation. Need conclusions for the area between.
- Sector-by-sector approach.

*Penny Duquenoy:*

- Why is AI regulation a topic? What are we worried about?
- What sort of regulation? Self-regulation, professional body standards and licence, codes of conduct...?
- High-level principles for regulation.
- How, who is involved, developers, organisations, universities?
- What would it have to do to avoid harm; regulatory test?
- *Not* using AI might be seen as negligent, e.g. in law

*Detlef Nauck:*

- AI audit framework under development. Understand use of data, decisions, explainability. It will not be mandatory, but provide guidelines.
- EU has announced commission to push out AI regulations.
- How AI is used will be regulated, rather than the AI itself.
- Statistical system will have a level of error – will it lead to an indemnity as in the human situation?

## Discussion

*Alistair Nottle (audience):*

Face recognition by humans is OK, so why not by AI?

- Kevin: Human stop and search is sometimes considered biased.
- Detlef: We are not talking about holding AI to a higher standard, but to some standard. Performance is too low.
- Chris: Police officer doesn't recognise all passers-by, but the AI will.

*Rachel White (audience):*

People power as semi-regulation.

- Penny: Turn it around and use AI to understand the concerns. Projects need to be socially acceptable.
- Detlef: Self-regulation in the industry.

*Max Bramer (audience):*

Accountability is the key.

- Detlef: If I were the controller, I would be liable.
- Max: Must be clear 100% of the time who is responsible.
- Kevin: Regulation is mostly driven by disasters.
- Penny: Due diligence is required. Many people know insufficient about AI to ask the right questions. Lack of understanding.
- Max: User must take responsibility or not use it.
- Chris: The 2018 act already covers autonomous vehicle causing injury or damage.

*Virginia Franqueira (audience):*

AI going into hands of industry and individuals. Without regulations, how can we protect human rights? No standards on current technology. Can't put responsibility on the user.

- Kevin: Car devices have to be approved, e.g. autopilots. Unknown unknowns are a challenge. Need to go sector by sector. The uses of drones are different in each sector.

*Tessa Darbyshire (audience):*

Legislation for design or legislation of outcomes? A threshold might be applied to design.

- Detlef: Due diligence can apply to designer and user, e.g. inappropriate use of auto pilot, in breach of the users' handbook. All software has bugs.

*Andrew Lea (Chair):*

Is AI different from other advanced software?

- Detlef: Automation is not new. With AI you can't so easily go in to fix it; the risks are greater. Decisions are delegated in ways they were not before.

*Name withheld (audience):*

Should we regulate capability or intent? E.g. reformulation of drugs – such a tool could be used to improve heart care or create a killer chemical.

- Penny: Why are computers different? They are a tool just like a gun.
- Kevin: It is about risk.
- Name withheld: HMG says we will not develop autonomous weapons regardless of their use against us.

*Peter Maddigan (audience):*

Why is AI different from any other technology that has emerged?

- Detlef: Regulator view is that fully automatic decision systems should not exist. There needs to be a human confirmation of the decision.
- Peter: insurance quote is an example. Detlef says he expects regulation there.

*Hung Ngo (audience):*

Robots and machines now can understand data. Will we try to understand the machine?

- Penny: It's about education and awareness-raising of AI. Human supervisor needs to understand how the AI is working.
- Hung: There is knowledge in the machine. Explainable AI is important.
- Detlef: Mitigation requires understanding by the owner of what the system does.

## Final comments

Andrew:

- Responsibility appears to be a key issue.

Chris:

- Consensus that regulation is needed. He doubts that a risk approach can be applied to AI development. Need explainable AI but it is often unavailable now.

Kevin:

- 'Who is responsible?' is the big question. Data interpretation is important. Risk classification system needed to ensure right level of regulation.

Penny:

- Will it be possible that an AI will self-regulate? Reminded of proposition for internet regulation by program code. Pragmatic short-term: young professionals in the field will need guidance and mentorship. Importance of education.

Detlef:

- We will get regulation. Needs to be sensible so it doesn't strangle the industry. Boundaries and constraints. The AI community has a role and must engage in the process. Regulators might otherwise make false assumptions.

## Final Vote

Approximately 2/3 of the audience agree with the proposition “**The deployment of AI should be specifically regulated**”, and 1/3 did not.

## Chair's Summary (not during the panel session)

These key themes emerged during the discussion:-

- It is the deployment of AI, not AI R&D, which should be regulated.
- Inappropriate *use* of AI, e.g. in sentencing systems, could introduce bias or great harm
- In some regards not obtaining the benefits of AI could be negligent.
- A risk-based, sector by sector, approach is appropriate.
- Maybe AI systems should have stated levels of accuracy.
- Issues always surround who is responsible.
- AI, especially ML, *is* different to “ordinary” complex software, because errors could be due to training data rather than code