



USING AI TO OPTIMISE ANIMAL WELFARE - OPPORTUNITIES AND ETHICAL CHALLENGES

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Declarations of Interest

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Chair, British Equestrian Federation Ethics and Welfare Advisory Group

Independent Member of the FEI's Ethics and Welfare Advisory Group

Independent Member British Horseracing Authority's Ethics Panel

Government-appointed member, Horserace Betting Levy Board

Health ~~=~~ welfare

- Use of AI in veterinary medicine has been an actively-developing field in recent years
- Use of AI to optimise animal* welfare (as distinct from animal health) is relatively nascent.
- [Opinion on breeding and breeding technologies in commercial livestock agriculture](#)



What we need to be focusing on is the lived welfare experiences of non-human animals



AI might also be used as a tool to reconcile some of the apparent and complex conflicts between animal welfare and environmental/sustainability objectives, e.g. greenhouse gas emissions



FARMERS**WEEKLY**

Breeding climate-friendly COWS

FW Farmers Weekly
May 18, 2021

New technologies such as cow vaccines and probiotics to tackle agricultural emissions, as well as bulls that potentially burp less, are one step closer.



Current and future opportunities to promote animal 'lives worth living' through the use of AI

Monitoring of individuals or groups

- Filming
- 'Wearable technologies',
- Coupled with AI analysis of the data
- Development of algorithms to recognise deviations from pattern
 - of locomotion (lameness);
 - of eating, drinking, social interaction (disease)

Limitation: we need to know what 'normal is'



Use of AI to detect and minimise negative welfare states

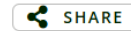


► *Animals* (Basel). 2024 Dec 19;14(24):3668. doi: [10.3390/ani14243668](https://doi.org/10.3390/ani14243668)

Efficient Cow Body Condition Scoring Using BCS-YOLO: A Lightweight, Knowledge Distillation-Based Method

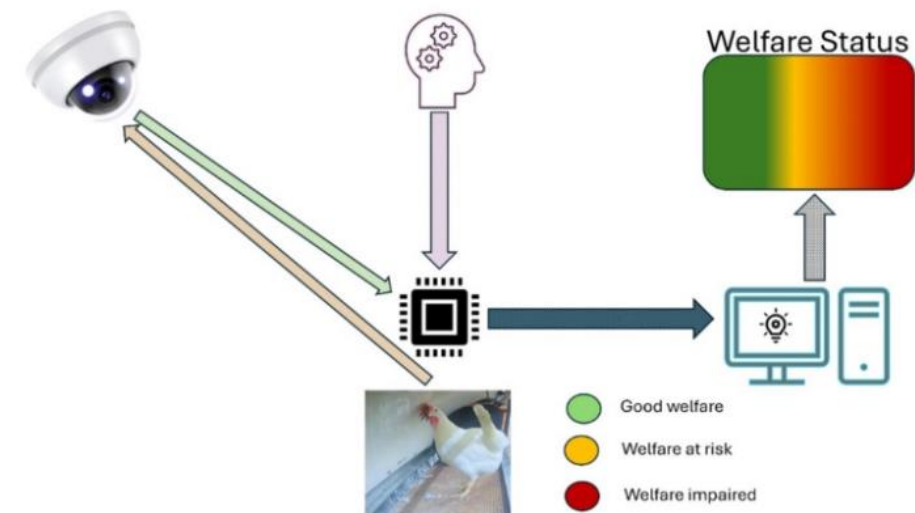
[Zhiqiang Zheng](#)^{1,2,3}, [Zhuangzhuang Wang](#)^{1,2,3}, [Zhi Weng](#)^{1,2,3,*}

The potential roles of artificial intelligence in poultry welfare monitoring: Current challenges and future needs



By [Gideon Ajibola](#) and [Marisa Erasmus](#), PhD
Purdue University

Computer audition (machine listening)



Computer vision schematics: an AI-powered camera captures the activity of a bird and transmits the information to the human-trained processor [algorithm] for analysis, which in-turn stores data on welfare status in the monitoring device

<https://modernpoultry.media/the-potential-roles-of-artificial-intelligence-in-poultry-welfare-monitoring-current-challenges-and-future-needs/?mp=1782388899828>

> J Equine Vet Sci. 2025 Jun;149:105568. doi: 10.1016/j.jevs.2025.105568. Epub 2025 Apr 10.

Exploring equine behavior: Wearable sensors data and explainable AI for enhanced classification

Bekir Cetintav ¹, Ahmet Yalcin ²

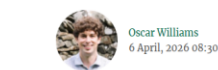
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Can AI judge dressage? The technology exists – but is the sport ready for it?



Oscar Williams
6 April, 2026 08:30

MIT News
ON CAMPUS AND AROUND THE WORLD

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Using generative AI, researchers design compounds that can kill drug-resistant bacteria

The team used two different AI approaches to design novel antibiotics, including one that showed promise against MRSA.

Anne Trafton | MIT News
August 14, 2025

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Animals

Livestock researchers use gene editing to eradicate sleeping sickness

2 min read

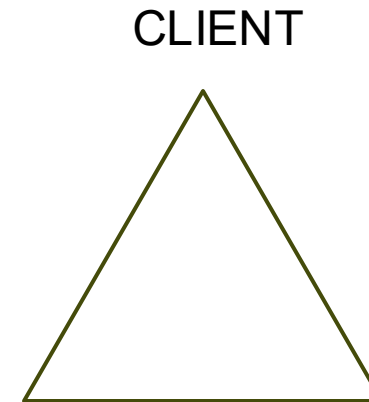
Ethical challenges

Some are common to all uses of AI

- ‘Rubbish in; rubbish out’ - lay or peer reviewed literature?
- Technical reliability
- Issues around bias and discrimination in AI tools which relate to machine learning techniques and may become embedded in the AI model.
- Concerns about the energy requirements of AI systems

Some data gathering and handling issues are of particular relevance to animal welfare applications

- Reluctance to publish [Opinion on breeding and breeding technologies in commercial livestock agriculture](#)
- Ownership of data – stakeholder conflicts
- Data protection
- Veterinary client confidentiality



BBC file photo

Issues around client/owner consent



<https://equigait.co.uk/state-of-the-art>



TsoLay Pro Drone 4K HD Camera Foldable Drone



£

Issues around accountability



Animal welfare act 2006

- Owner ultimately responsible?
- 'Lazy humans' (over-reliance)
- Veterinary professional accountability and liability



Feeding cows by GEA robot

<https://www.silageconsultant.co.uk/blog/automated-silage-feeding-robots-science-fiction-or-the-future>



AI undoubtedly has the potential to help humans improve the welfare of non-human animals: responsible use of AI is therefore an ethical imperative



BUT
there are a series of
necessary ethical
safeguards which **must be**
put in place whilst
adoption of AI in relation
to animal welfare is in its
early stages:

■
■



- We need to address all of the usual concerns around technical reliability, data, confidentiality etc **as they relate to animal welfare and veterinary care**
- We should recognise the vulnerability of non-human animals and maintain detailed **human oversight of AI systems which are interacting with and driving decision-making about non-human animals.**
- We need **distinguish between health and welfare** and develop specific AI applications for each.
- We must practice **inter-disciplinary responsibility**
- Veterinarians and animal welfare scientists must be involved in the development of AI systems relating to non-human animals **from the early design stages**
- Conversely, end users (veterinarians and animal welfare scientists) need **basic science training** in how AI systems function



If we are serious about providing animals with ‘good lives’ rather than just ‘lives worth living’ we need to start using AI to recognise positive as well as negative affective welfare states

